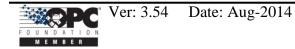


User's Manual [For Windows 98/Me/NT/2000/XP/7]

(Supports 7000, 8000, 87000 series modules and modbus controllers)



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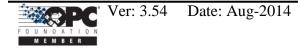


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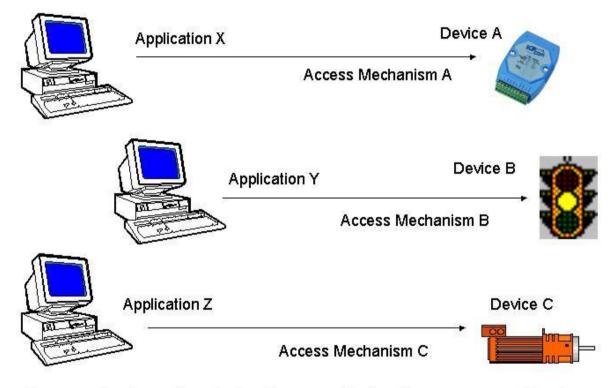
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1 NAPOPC_ST DA Server

The NAPOPC_ST DA Server uses an Explorer-style user interface to display a hierarchical tree of modules and groups with their associated tags. A group can be defined as a subdirectory containing one or more tags. A module may have many subgroups of tags (see page 8). All tags belong to their module when they are scanned for perform I/O. (The "OPC" stands for "OLE for Process Control" and the "DA" stands for "Data Access".)

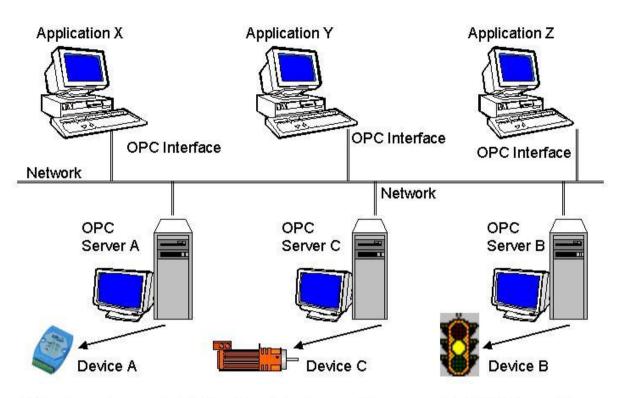
The following two figures show the difference between traditional mechanisms and the OPC mechanism.



For accessing the various devices for any application, there are many different mechanisms provided by different vendors.

Figure 1-0-1 Traditional mechanisms used to access a device.





Different vendors provide both different devices and the appropriate OPC Server. To access each device for any application, there is only one common mechanism through the "OPC Interface".

Figure 1-0-2 Using the OPC mechanism to access a device.

The main program of NAPOPC_ST DA Server is "NAPOPCSvr_ST.exe". It automatically calls the "DCON_PC.DLL", "IOCtrl.DLL" and "UART.DLL" functions on demand.

1.1 Installing NAPOPC_ST DA Server

You can get the software from the "CD: \Napdos\Napopcsvr\" or you can download it from <u>http://opc.icpdas.com/download.htm</u> .

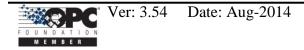
Hardware Requirement:

- A personal computer with at least a Pentium, 133 MHz or faster processor
- 32 Mbytes ram (Preferably 64 Mbytes ram)
- 10 Mbytes hard disk free space

Software Requirement:

One of the following computer operating systems must be installed on your computer system.

- Windows 98
- Windows ME/NT/2000
- Windows XP
- Windows 7 32 bits



Double click the CD:\\Napdos\Napopcsvr\NAPOPC_ST DA Server.exe and follow the installing wizard to finish the installation.

After you complete the above steps, you can start the NAPOPC_ST Server by clicking the "NAPOPC_ST DA Server" as below.

🛅 Icpdas	🕨 🧰 NAPOPC_ST 🔸 🧰 Client
	🗧 🔁 FAQ
	🛅 Manual
	📩 NAPOPC_ST DA Manual
	X NAPOPC_ST DA Server
	🧭 Uninstall NAPOPC_ST DA Server
	📋 Readme.txt
	📋 What's new

Note: If you want to use FRnet modules in NAPOPC_ST, please download FRB driver and install it first. If you want to use FBR driver under windows 7 64 bits, please make sure if it is available or not. Download link: http://www.icpdas.com/download/frnet/index.htm

Note: Please uninstall old version NAPOPC_ST before install new NAPOPC_ST

1.2 Uninstalling NAPOPC_ST DA Server

	Currently installed programs:		Show up <u>d</u> ates	Sort by: Name		×
Change or Remove	B Device Simulation Framework 1.0.1	Charles and	20153	Size	2.99MB	~
Programs	1 <mark>1</mark> 9 I-756x			Size	2.21MB	
-	🥏 Inno Setup QuickStart Pack version 5.3.11			Size	5.91MB	
<u> </u>	🂕 InnoIDE 1.0.0.55			Size	6.03MB	
Add <u>N</u> ew Programs	🛃 Microsoft .NET Framework 2.0 Service Pack 2			Size	183.00MB	
-	🛃 Microsoft .NET Framework 3.0 Service Pack 2			Size	207.00MB	
9	🛃 Microsoft .NET Framework 3.5 SP1			Size	28.11MB	
dd/Remove <u>W</u> indows	5 Microsoft .NET Framework 4 Client Profile			Size	120.00MB	
omponents	Microsoft .NET Framework 4 Extended			Size	38.04MB	
	🛃 Microsoft Document Explorer 2008			Size	26.27MB	
et Program	Microsoft Windows Driver Kit 7.1.0.7600					
ccess and Defaults	Modbus Slave 4.4.5			Size	0.81MB	
Derduits	RAPOPC_ST DA Server version 3.3			Size	<u>12.07MB</u>	
	Click here for support information.			Used	frequently	
				Last Used On	11/4/2010	
	To remove this program from your computer, click Remove.				Remove	-
	🐻 NI Server Explorer			Size	4.11MB	
	😃 Tera Term 4.67			Size	8.16MB	

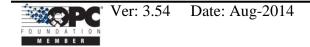
Step 1:

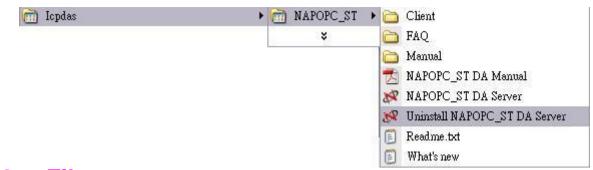
Go to "Add or Remove Programs" dialog and select NAPOPC_ST DA Server

Step 2:

Press "Remove" button to remove NAPOPC_ST DA Server

NAPOPC_ST DA Server v3.30 or later version provides "Uninstall" function as below. You can use this function to uninstall NAPOPC_ST DA Server.





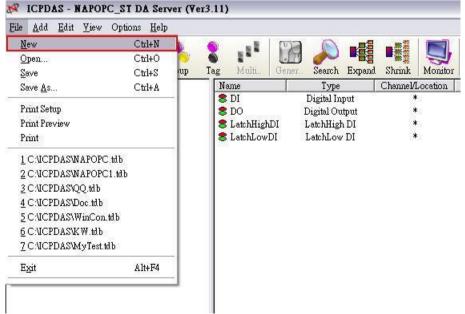
1.3 File

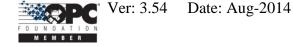
All configuration settings can be saved into configuration file by clicking the "File/ Save" and "File/ Save As ..." menu item. The OPC server will automatically load the last configuration file with every launch.

ile <u>A</u> dd <u>E</u> dit <u>V</u> iew	/ Options <u>H</u> elp	S.,			
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<u>S</u> ave	Ctrl+S	up	Tag Multi Ge	ner. Search Expand	Shrink Monitor
Save <u>A</u> s	Ctrl+A		Name	Туре	Channel/Location
D.1.10.1			8 DI	Digital Input	*
Print Setup			8 DO	Digital Output	*
Print Preview			S LatchHighDI	LatchHigh DI	*
Print			S LatchLowDI	LatchLow DI	*
1 CACPDASWAPOI	PC.tdb				
2 C: VCPDAS WAPOI	PC1.tdb				
3 C:\ICPDAS\QQ.tdb					
4 C:\ICPDAS\Doc.tdl	Ь				
5 C:\ICPDAS\WinCo	n.tdb				
6 C: VICPDASVK W.tdl	Ь				
7 C:\ICPDAS\MyTes	t.tdb				
Exit	Alt+F4				

New:

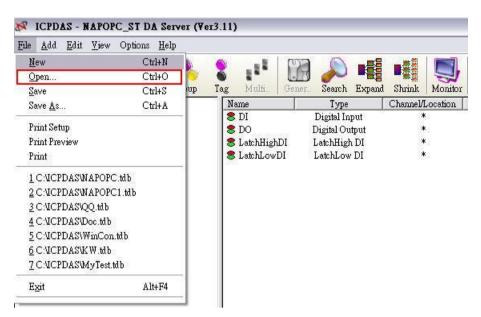
Clean current project and create a new project





Open:

Load old NAPOPC_ST project



Save:

Save current NAPOPC_ST project

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Save <u>A</u> s	Ctrl+A		Na	me		Туре		Channel/I	ocation
			8	DI	200	Digital In	put	*	
Print Setup			8	DO	I)igital Ou	tput	*	
Print Preview		I .	8	LatchHigh	DI I	atchHig	n DI	*	
Print			8	LatchLow	DI I	LatchLow	DI	*	
1 CAICPDASWAPO	PC.tdb								
	1001 131								

Save as...:

Save NAPOPC_ST project as a new one

<u>File A</u> dd <u>E</u> dit <u>V</u> iew Opt	ions <u>H</u> elp								
New	Ctrl+N	8	0	. 1	[[[]]]	0	-53		
Open	Ctrl+O	P)		1.	.7	\sim			2
Save	Ctrl+S	up	Tag	Multi	Gener.	Search	Expand	Shrink	Monitor
Save <u>A</u> s	Ctrl+A	1	Na	ume		Туре		Channel/I	Location
	and and a set	1	8	DI		Digital In	put	*	10
Print Setup			8	DO		Digital Ou	tput		5 C
Print Preview			8	LatchHig	hDI	LatchHigh	n DI	*	20
Print			8	LatchLow	/DI	LatchLow	v DI	*	¢
1 CAUCPDASWAPOPC.tdb									
2 C: VCPDAS WAPOPC1.tdl	5	I							
3 C: VICPDAS VQQ.tdb		L .							
4 C:\ICPDAS\Doc.tdb									



Import CSV File > Modbus TCP...:

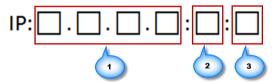
Import a CSV file to create a NAPOPC_ST project based on the Modbus TCP.

File	Add Edit View	Options	Help						
	New Open Save	Ctrl+N Ctrl+O Ctrl+S	Group	S Tag	Multi_	Gener_	Search	Expand	Shrin
	Save As	Ctrl+S Ctrl+A	e	Тур	be	Channel/L	oca	Value	So
-	Save As Ctrl+A Import CSV File		Modbus TCP						
	Print Setup								
	Phili Setup								

CSV file format: The file name is *.csv. The first row is for the title name and separated by commas. For example:

IP,GroupName,TagName,Address,Function,DataType
127.0.0.1:502:1, G11R11_ACM_CURPOW_STS, 1, 1X, Bool
127.0.0.1:502:1,a1,G11R11_ACM_BAKPOW_STS,2,1X,Boo1
192.168.1.6:502:1, G12R11_B28V_CURPOW_STS, 1, 4X, Float
192.168.1.6:502:1,b1,G12R11_B28V_BAKPOW_STS,3,4X,F1oat
192.168.1.6:502:1, G12R11_B120V_CURPOW_STS, 5, 4X, Float
192.168.1.6:502:1,b2,G12R11_B120V_BAKPOW_STS,7,4X,F1oat
192.168.1.6:502:2, G12R11_B120V_BAKPOW_STS, 9, 4X, Float

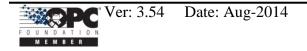
Note 1. IP: IP Address, Port, and Address.



Note 2. GroupName: if blank, means the Tag belongs to the Device.

Device Properties		×
Device Name 127.0.0 Controller Setting O Modbus RTU O Modbus ASCII O Modbus TCP	1:502:1 O ISaGRAF O General Modbus Device IP Address 127.0.0.1	3 Address 1 Timeout 500 Msg Delay 0
COM Port Setting -	Port 502	Word Swap

Title		Descriptions							
IP	Device IP A	ddress, Port, Address; e.g., 127.0.0.1:502:1							
GroupName	Group nam	e (If blank, means the Tag directly belongs to Device.)							
TagName	Tag name	Tag name							
Address	Modbus address								
	0X	Coil Status, Modbus instructions 01, 05 and 15							
Function	1X	Input Status, Modbus instruction 02							
T UNCTION	3X	Input Register, Modbus instruction 04							
	4X	Holding Register, Modbus instructions 03, 06 and 16							
	bool	Tag data type: Boolean							
	short	Tag data type: 2 bytes Integer							
DataType	long	Tag data type: 4 bytes Integer							
Dalaiype	float	Tag data type: 4 bytes Floating Point							
	word	Tag data type: 2 bytes unsigned Integer							
	dword	Tag data type: 4 bytes unsigned Integer							

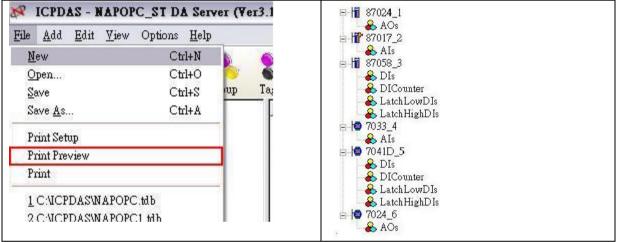


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Save	Ctrl+S	up	Tag	Multi me	Gener	Search Type	Expand	Shrink Channel/	Monitor
Save <u>A</u> s Ctrl+A			- International Academics	DI		Digital Inj		A TOTAL CITICITY	
Print Setup	11	1000	DO		Digital Ou				
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Print		1	S LatchLowDI LatchLow DI		*				
1 CAUCPDASWAPO	PC.tdb								
2 C: VCPDASWAPO	PC1.tdb								
3 C:\ICPDAS\QQ.td	Ь								
4 C:\ICPDAS\Doc.td	b								
	(1)								

Print Preview:

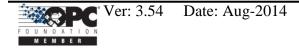
Preview current modules list



Print

Print current modules list

Eile <u>A</u> dd <u>E</u> dit <u>V</u> iev	v Options <u>H</u> elp	S							
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Print			8	LatchLow	DI	LatchLow	DI	*	
1 C: VICPDAS WAPO	PC.tdb								
2 C: VCPDAS WAPO	PC1.tdb								
3 C:\ICPDAS\QQ.tdl)								
4 C:\ICPDAS\Doc.td	Ъ								
5 C:\ICPDAS\WinCo	on.tdb								
6 C: VCPDAS W.td	Ъ								
7 C:\ICPDAS\MyTes	t.tdb								
Exit	Alt+F4								



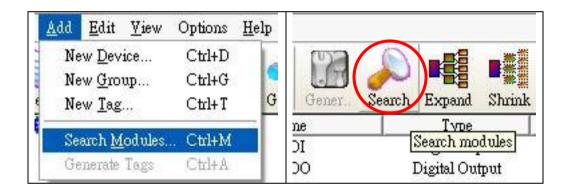
1.4 Searching Modules

The "Search Modules..." function lets you configure the OPC server automatically. It searches the RS-232 and RS-485 network to find modules and then generates tags automatically. This function generates AI/AO, DI/DO, Latched DI and Counter tags.

NOTE:

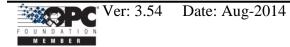
For complete module support, please update "\ICPDAS\NAPOPC_ST \module.ini", "\ICPDAS\NAPOPC_ST\module_ET.ini", "\ICPDAS\NAPOPC_ST\m odule_FRnet.ini" ,and "\ICPDAS\NAPOPC_ST\module_WISE.ini"from http://opc.icpdas.com/download.htm frequently.

Step 1: Click on the "Add/ Search Modules..." menu item or the \checkmark icon to search for modules.



Step 2: The "Search Modules" dialog box pops up.

COM 1	Ethernet	
Baud Rate Searchi	C Sector Control Co	or ottes
Г 921600 Г 4	460800 🗖 23040	0 🗖 115200
57600 🔲 :	38400 🗖 19200	9600
4800 🗖 3	2400 🗖 1200	
Select All	Cle	ear All
Address / 1 to 255) – Checksum –	
Address (1 to 255	1	Timeout (mS
Start 0	Disabled	200
End 255	🗹 Enabled	
Status:		



COM Port:

Specifies which "COM Port" number is search. The default value is 1 and the valid range is from 1 to 255. Please verify the "COM Port" number that the RS-232 or RS-485 network is connected.

Ethernet IO/WISE:

If this field is checked, NAPOPC can search not only the modules communicating via COM port but also "Ethernet IO" and "WISE" modules via Ethernet automatically.

Clear Modules:

Modules can be added many times. If this field is checked, it removes all modules from the list window before searching. Checking this box prevents adding a duplicate module. The default setting is "not checked".

Baud Rate Searching:

Specifies which "Baud Rate" will be look for. The default setting is "9600".

Naturally, if multiple baud rates are checked, the search will be longer. The computer system must close and then reopen the COM ports to communicate with modules when searching for multiple baud rates. This also reduces communication performance. Thus, using the same baud rate and COM port number for every module is highly recommended.

Select All:

Sets all of the "Baud Rate" be checked. Please refer to the above "Baud Rate Searching" section.

Clear All:

Sets all of the "Baud Rate" be unchecked (nothing to search). Please refer to the above "Baud Rate Searching" section.

Address/Start:

Specifies the starting address. The default value is 1 and the valid range is from 1 to 255. It won't search for an address below these settings.

Address/End:

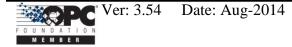
Specifies the ending address. The default value is 255 and the valid range is from 1 to 255. It won't search for an address greater than these settings.

Checksum/Disabled:

If this field is checked, modules are searched with no checksum. If both the "Disabled" and "Enabled" fields were unchecked, the search would be undefined.

Checksum/Enabled:

If this field is checked, it searches modules with checksum. If both the "Disabled" and "Enabled" fields were unchecked, again, the search would be undefined.



Timeout:

Specifies the communicate timeout value for each module. The default value is 500 (equal to 0.5 Seconds), measured in millisecond(s) [0.001 Second(s)]. After a module has been found, this timeout value will also be recorded for further use.

Users can reduce this value to shorten the search time. Be careful. A shorter search time may cause communication failure.

Status:

It shows the searching status (includes: progress in %, Address in "A:??", Baud-Rate in "B:???", Checksum in "S:?" and Error-Code in "EC:??"). The timeout error code is 15. In most cases, it indicates no module has responded to the current command.

Search:

After setting the above options, click this button to search. The window will be closed automatically when completed.

Stop:

During the search, users can click the button to stop. The window will stay on the screen after the search is cancelled.

Exit:

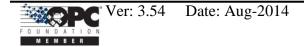
Users can click the button to close the window.

Step 3: After the search, the discovered modules will be listed on the Device-Window (left side). Users can also see the tags on the Tag-Window (right side) generated by the "Search Modules..." function automatically.

<u>File A</u> dd <u>E</u> dit <u>V</u> iew C	ptions <u>H</u> elp		
	evice-Window	🕽 👔 🗍 Ta	g-Window
New Open Say	Device Group	Tag Gene	Search Expand Shr
🖃 🧐 7033D	Name	Туре	Channel/Location
🔒 AIs	8 Ch00	Bit Inpy	0
😑 👹 7044	8 Ch01	Bit Input	1
🔒 DIs	8 Ch02	Bit Input	2
🖌 🔏 DOs	8 Ch03	Bit Input	3
🔒 LatchLowDIs	8 Ch04	Bit Input	4
🛛 🥉 LatchHighDIs	8 Ch05	Bit Input	5
🖻 🚾 7060D	🙎 Ch06	Bit Input	6

The "Search Modules..." function generates "Digital Input", "Digital Output" "Bit Input" or "Bit Output" tags.

The "Digital Input" and "Digital Output" tags use one communication to read the status of all channels, while the "Bit Input" and "Bit Output" tags use one communication to read only one-channel status. The "Digital Input" and "Digital Output" tags have better performance than the "Bit Input" and "Bit Output" tags.



Using the "Digital Input" and "Digital Output" tags to access modules is highly recommended.

File Add Edit Yiew O	ptions <u>H</u> elp	• [22]	
New Open Save	Device Group	Tag Gener.	Search Expand Shr
🖃 🧐 7033D	Name	Туре	Channel/Location
AIs	8 Ch00	Bit Input	0
🖻 🔯 7044	8 Ch04	Bit Input	1
A DIS	8 Ch02	Bit Input	2
DOs	Ch03	Bit Input	3
🔒 LatchLo Grou	ips ChO4	Branut	4
🔏 LatchHignuns	Ch05	Bit Tags	5
🖻 🚾 7060D	8 Ch06	Bit	6

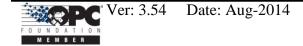
Monitoring Devices 1.5

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

	or Ctrl+U			1 1053	0	2	
New Open	Bar Ctrl+B	лр	a Tag	Gener.	Search	Expand	Shri
🖃 🧐 7033D 🖌 <u>T</u> oolE	lar			Туре	Cha	nnel/Locat	tion
🔒 🔏 AIs	8 Ch00	2.113	Bi	it Input		0	
😑 🚾 7044	8 Ch01		Bi	it Input		1	
🔒 DIs	8 Ch02		Bi	it Input		2	
DOs 🔏	8 Ch03		Bi	it Input		3	
- 🔏 LatchLowDIs	8 Ch04		Bi	it Input		4	
🛛 🔏 LatchHighDIs	8 Ch05		Bi	it Input		5	
🖻 🔯 7060D	8 Ch06		Bi	it Input		6	
DIs DOs Counter LatchLowDIs LatchHighDIs							

Step 1: Click the "View/ Monitor" menu item or the Sicon to enable monitor.

Step 2: Select the "DIs" group in the Device-Window (left side) to monitor its own Bit -Input tags.



🕀 🐵 7011	Name	Туре	Channel/Location	Value
🗄 🖓 7012D	8 Ch00	Bit Input	0	
🗄 🖓 7033D	8 Ch01	Bit Input	1	
🗄 🖓 7044	8 Ch02	Bit Input	2	
🗄 🖓 7060D	8 Ch03	Bit Input	3	
🖻 🖓 7050D	8 Ch04	Bit Input	4	
	8 Ch05	Bit Input	5	
	8 Ch06	Bit Input	6	
🚽 🔒 Counter				
🚽 🏯 LatchLowDIs				

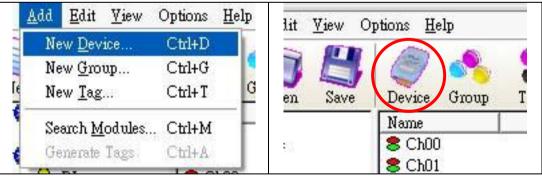
Step 3: Select the "7050D" module on the Device-Window to monitor its own Digital-Input and Digital-Output tags.

🕀 🐵 7033D	Name	Туре	Channel/Location	Value
🗄 🖓 7044	8 Ch00	Counter	0	
🗄 🖓 7060D	🛢 СЪО1	Counter	1	
🖮 🔤 7050D	8 Ch02	Counter	2	
🚽 🔒 DIs	8 Ch03	Counter	3	
🚽 🔒 DOs	🛢 СЪО4	Counter	4	
Counter	🛢 СЪО5	Counter	5	
LatchLowDIs	🛢 СЪОб	Counter	6	
🔒 LatchHighDIs				

1.6 Adding A New Device

1.6.1 Adding A New I-7K/I-8K/I-87K/ZB-2K I/O Module

Step 1: Click on the "Add/ New Device..." menu item or the sicon to add a new module.

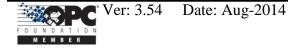


Step 2: The "Select Device" dialog box pops up.

Step 3: Click on the "DCON" radio button.

Step 4: Click on the "I-7K/I-8K/I-87K/ZB-2K I/O Modules" radio button.

Step 5: Click the "Remote" or "With Controller" radio button.



Device Name Device1]-7K/I-8K/I-87K/ZB	-2K I/O Module
Module Setting	2K 2012 2 2D 2K
⊙ Remote	7K 7017 • ZB-2K •
With Controller	Controller 87K
	8K
Address 1	(0~255) Timeout (mSec) 500
Slot 🗍	(0~7 for 8K Modules) Checksum Disable 💌
(Enable WDT)	(WDT Timeout 1 Sec
<u> </u>	(mpi imicour ji bec)
COM Port Setting -	
COM 1 Raud Rate 115200	Parity None Data Bits 8
auu Kale 115200	Stop Bits
RPC Controller Setting Address 192.168.2	55.1 Port 505 Timeout 500

Device Name:

Names with spaces or punctuation such as "|!.," cannot be used within a module name. The clients use the "Device Name" and "Tags" to access its value. The "Device Name" can not be the same as any other module.

7K/ 87K/ 8K/ZB-2K Controller Module ID:

User can click on the Combo Box to select a Module ID.

Address:

Specifies a Module Address for this module. The default value is 1 and the valid range is between 1 to 255.

This field is disabled for the 8000 sub-devices. It will use the 8000 main-device's address.

Timeout:

Specifies timeout (Response time) value for this module. The default value is 200 ms. A smaller timeout value may cause communication failure and a greater timeout value may reduce the performance of the client program.

This field is disabled for the 8000 sub-devices and it will use the 8000 main-device's timeout value.

Slot:

The 8000 main-device has 4 or 8 slots for the 8000 sub-device to plug in. This "slot" field indicates the slot number that the 8000 sub-device is using. The valid range is from 0 to 7.

This field is disabled for 8000 main-device and 7000 series modules.

Checksum:

This checksum field must match the hardware setting. A mismatch will always cause a communication failure with this module.

This field is disabled for the 8000 sub-devices and it will use the 8000 main-device's checksum.

Enable WDT:

The "Enable WDT" checkbox switches if the module enables watchdog function or not. If the module wants to use watchdog, it should be configured by DCON Utility to enable WDT and setup timeout value.

WDT Timeout:

The "WDT Timeout" range is 1 to 25.5 sec. Please give an appropriate value for each module. And the "Communication Mechanism" has to be "Multi-Thread".

COM Port:

Specifies the COM port to be used. Please verfiy which COM port number that the RS-232 / RS-485 network is using. Wrong settings will always cause communication failure.

This field is disabled for the 8000 sub-devices. It will use the 8000 main controller unit COM port setting.

Baud Rate:

Specifies the baud rate to be used. Verify the module's current baud rate. A wrong setting will always cause communication failure for this module.

This field is disabled for the 8000 sub-devices. It will use the 8000 main-controller unit baud rate.

Simulate I/O:

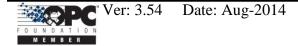
The "Simulate I/O" checkbox switches to a simulator of reading I/O. Since the simulator does not open the COM port, it is an easy way to work with the server, to configure tags or to connect clients without requiring any hardware. This field is disabled and not used for the 8000 main controller unit.

Pending Time:

Minimum interval time between two access. To activate this function, NAPOPC_ST can work under optimized communication performance. If this module only needs to be accessed 1 time per 5 seconds. You can set pending time as 5000 ms. NAPOPC_ST will automatically spread time resource to other modules which are connected with each other.

OK:

Click on the "OK" button to add the new module setting.



Cancel:

Click on the "Cancel" button to avoid any changes.

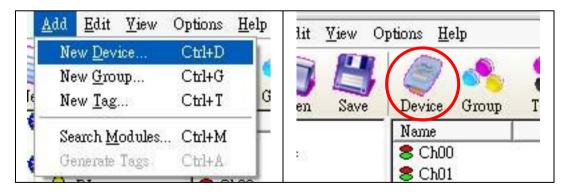
Step 6: Click on the "OK" button to add this new module.

1.6.2 Adding A New RPC Controller

Before adding a new "RPC" controller, please check "RPC Server" and "Active ScanKernel" at "Services Setup" dialog of "NAPOPC_CE5/CE6" in WinCon/WinPAC/ ViewPAC.

E 8057_1		Name	Type		Channe	l/Locatic
 ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■ ■		8 DO	Digital	Output	*	1.2.4.4
⊕ 1 87057_4 5	ervices S	atup				×
 ➡ 87041_5 ➡ 87052_6 	RPC Ser	ver 505		Modbus 1	СР	
🖻 📔 87018R_7 【		canKernel	F	Port number	502	- 11
·⊡-1 87054_8	blave numbe	er 1	~	ore manipor	1	
[Modbus	RTU 1		Modbus F	RTU 2	
	COM port	COM2	V	COM port	СОМЗ	~
	Baudrate	9600		Baudrate	9600	~
	Parity	None	<u>-</u>	Parity	None	-
	Data Bits	8 (RTU)	~	Data Bits	8 (RTU)	-
	Stop Bits	1	~	Stop Bits	1	~

Step 1: Click on the "Add/ New Device..." menu item or the sicon to add a new module.



Step 2: The "Select Device" dialog box pops up.

Step 3: Click on the "DCON" radio button.

Step 4: Click on the "RPC" radio button.

I-7K/I-8K/I-87K/ZB-2K I/O Module Module Setting O Remote 7K ▼ ZB-2K ▼ O With Controller Controller 87K ▼ 8K ▼ 87K ▼ Address 1 (0~255) Timeout (mSec) 300 Slot 0 (0~7 for 8K Modules) Checksum Disable ▼ COM Port Setting	Device Name Device	1		
 C Remote 7K ZB-2K ZB-2K With Controller Controller 87K 87K) I-7КЛ-8КЛ-87К/Z	B-2K I/O Module		
O With Controller Controller ▼ 87K ▼ 8K ▼ 87K ▼ 87K ▼ Address 1 (0~255) Timeout (mSec) 300 300 Slot 0 (0~7 for 8K Modules) Checksum Disable ▼ COM Port Setting Parity None ▼	Module Setting —	14		
8K Image: Strain of the stra	O Remote	7K	ZB-2K	
Address (0~255) Timeout (mSec) 300 Slot (0~7 for 8K Modules) Checksum Disable COM Port Setting COM 1 Parity None	O With Controller	Controller	871	< 📃
Slot 0 (0~7 for 8K Modules) Checksum Disable 💌 COM Port Setting COM 1 💌 Parity None 💌		8К 🗌		
Slot 0 (0~7 for 8K Modules) Checksum Disable 💌 COM Port Setting COM 1 💌 Parity None 💌			Timoout (mSo	N 300
COM Port Setting COM 1 Parity None				Sector Sector
COM 1 Parity None -	Slot 🛛	(0~7 for 8K M	odules) Checksu	m Disable 💌
	COM Port Setting -			
Baud Rate 115200 💌 Data Bits 🛛 💌	сом 1	-	Parity	None -
	Baud Rate 115200	*	Data Bits	8
Stop Bits 👔 🚽			Stop Bits	1 -
	Controller Setting —			
RPC Controller Setting	P Address 192.168	.255.1 Port	505 Time	anut 300
Controller Setting	I Huuless	internet internet	1	our less

Device Name:

Names with spaces or punctuation such as "|!.," cannot be used within a module name. The clients use the "Device Name" and "Tags" to access its value. The "Device Name" can not be the same as any other module.

Timeout:

Specifies timeout (Response time) value for this controller. The default value is 200 ms. A smaller timeout value may cause communication failure and a larger timeout value may reduce the performance of the client program.

Port:

You have to set up the value with "505" for communicating with NAPOPC_CE5 or NAPOPC_CE6.

IP Address:

The uniqe IP address of your NAPOPC_CE5 or NAPOPC_CE6.

OK:

Click on the "OK" button to add the new controller setting.

Cancel:

Click on the "Cancel" button to avoid any changes. **Step 5:** Click on the "OK" button to add this new device.

Step 6: After clicking on the "OK" button, NAPOPC_XPE will automatically synchronize and generate the modules of "NAPOPC_CE5/CE6".

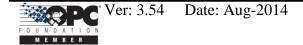
New Open Save Device Group	Tag Multi. G	ener Search Expand	Shrink Monitor
🖃 📊 Device5	Name	Туре	Channel/Location
8057_1	🗶 CF00	Bit Output	0
DOs Contraction	🛛 🍔 Ch01	Bit Output	1
8041_2	🛛 🍔 СЪО2	Bit Output	2
DOs 🔒	😹 Ch03	Bit Output	3
E 1 8053_3	🗶 СЪО4	Bit Output	2 3 4 5
DIs	🗶 CF02	Bit Output	5
87057_4	🛛 🍔 Ch06	Bit Output	6
DOs 🕹	🛛 🗶 Ch07	Bit Output	6 7 8
in 187041_5	8 Ch08	Bit Output	
🔒 🕹 DOs	8 Ch09	Bit Output	9
🖻 📊 87052_6	8 Ch10	Bit Output	10
- 🍰 DIs	8 Ch11	Bit Output	11
- 🔒 DICounter	8 Ch12	Bit Output	12
- 🔒 LatchLowDIs	8 Ch13	Bit Output	13
🚽 🚣 LatchHighDIs	8 Ch14	Bit Output	14
🖻 📊 87018R_7	8 Ch15	Bit Output	15
AIs			
🖻 📊 87054_8			
- 🍰 DIs			
- 🐣 DOs			
- 🔏 DICounter			
LatchLowDIs			
🕹 LatchHighDIs			

1.6.3 Adding A New FRnet I/O

Step 1: Click on the "Add/ New Device..." menu item or the vice icon to add a new module.



Step 2: The "Select Device" dialog box pops up. **Step 3:** Click on the "FRnet" radio button.



lect Device		
DCON	• FRnet O Modbus	
Device Name		
FRnet module	Setting Receiver Address: 8 Sender Address: 0	
🗖 Simulate I/O		
	OK Cancel	

Device Name:

Names with spaces or punctuation such as "|!.," cannot be used within a module name. The clients use the "Device Name" and "Tags" to access its value. The "Device Name" can not be the same as any other module.

Active Board:

Board number that you want to active, start from number 0(0 the First FRB Board, 1 the Second FRB Board). Please refer to the FRB Board manual for more information.

Port:

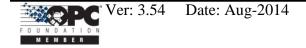
The "Port" indicates the port number(0 or 1) of FRB Board. Please refer to the FRB Board manual for more information.

FRnet Module ID:

User can click on the Combo Box to select a FRnet module ID.

Receiver Address:

FRnet communication needs correct hardware configurations for the



sender address (SA) and receiver address (RA) on the host controller and the remote module in the network. Please refer to the FRnet manual for more information.

Sender Address:

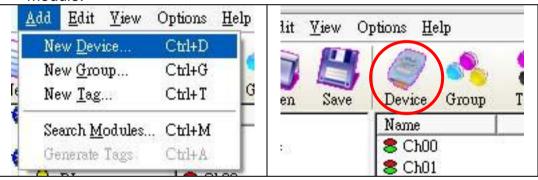
FRnet communication needs correct hardware configurations for the sender address (SA) and receiver address (RA) on the host controller and the remote module in the network. Please refer to the FRnet manual for more information..

Simulate I/O:

The "Simulate I/O" checkbox switches from reading I/O from the module to running a simulator. Since the simulator does not open the COM port, it is an easy way to work with the server, to configure tags or to connect clients without requiring any hardware.

1.6.4 Adding A New Modbus TCP Controller

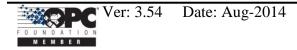
Step 1: Click on the "Add/ New Device..." menu item or the vice icon to add a new module.



Step 2: The "Select Device" dialog box pops up.

Step 3: Click on the "Modbus" radio button.

Step 4: Click on the "Modbus TCP" radio button.



DCON C	FRnet FRnet	us
Device Name Device3 - Controller Setting —		
 Modbus RTU Modbus ASCII Modbus TCP COM Port Setting - 	 O ISaGRAF O General Modbus Device IP Address 192.168.255.1 Port 502 	Address 1 Timeout 500 Msg Delay 0 Word Swap
COM 1 Baud Rate 11520	Stop I	Bits 8
		Register 122

Device Name:

Names with spaces or punctuation such as "|!.," cannot be used within a module name. The clients use the "Device Name" and "Tags" to access its value. The "Device Name" can not be the same as any other module.

ISaGRAF:

Connect ISaGRAF controller

General Modbus Device:

Connect general modbus device

IP Address:

The uniqe IP address of your Modbus TCP controller.

Port:

You have to set up the value with "502" for communicating with ICP DAS Modbus TCP controller

Address:

Specifies a Address for this controller. The default value is 1 and the valid range is between 1 to 247.

Timeout:

Specifies timeout (Response time) value for this controller. The default value is 200 ms. A smaller timeout value may cause communication failure.

Msg Delay:

Specifies message delay value for this controller. The default value is 0 ms. A smaller msg delay value may have a higher system loading, but it will have a faster data exchange speed.

Word Swap:

The "Word Swap" checkbox switches the interpretation of 4 Byte values. Sometimes we need to make the checkbox "TRUE" in order to achieve the purpose of Lo-Hi/Hi-Lo communication.

Request Tag Number:

The "Request Tag Number" sets tag value numbers that each command will get from device. For ISaGRAF, it should less than 124 for coil and register. For 7188MTCP, it should less than 498 for coil and 127 for register. The default numbers are both 122. (For Modbus standard, it can't greater than 2000 for coil and 127 for register.

Simulate I/O:

The "Simulate I/O" checkbox switches to a simulator of reading I/O. Since the simulator does not open the TCP/IP port, it is an easy way to work with the server, to configure tags or to connect clients without requiring any hardware.

Pending Time:

Minimum interval time between two access. To activate this function, NAPOPC_ST can work under optimized communication performance. If this module only needs to be accessed 1 time per 5 seconds. You can set pending time as 5000 ms. NAPOPC_ST will automatically spread time resource to other modules which are connected with each other.

OK:

Click on the "OK" button to add the new controller setting.

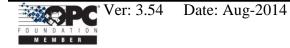
Cancel:

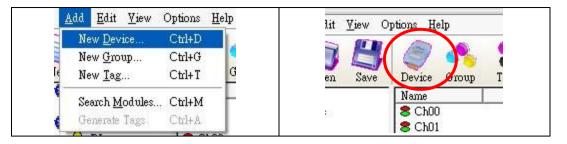
Click on the "Cancel" button to avoid any changes.

Step 5: Click on the "OK" button to add this new device.

1.6.5 Adding A New Modbus RTU Controller

Step 1: Click on the "Add/ New Device..." menu item or the *solution* icon to add a new module.





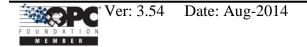
Step 2: The "Select Device" dialog box pops up.

Step 3: Click on the "Modbus" radio button.

Step 4: Click on the "Modbus RTU" radio button.

evice Name Device3 Controller Setting —		
⊙ Modbus RTU ○ Modbus ASCII ○ Modbus TCP	 O ISaGRAF O General Modbus Device IP Address 192.168:255.1 Port 502 	Address 1 Timeout 500 Msg Delay 0 Word Swap
Baud Rate 11520	Stor	a Bits 8 •
Request Tag Numbe	r Coil 122	Register 122 s device)

Device Name:



Names with spaces or punctuation such as "|!.," cannot be used within a module name. The clients use the "Device Name" and "Tags" to access its value. The "Device Name" can not be the same as any other module.

ISaGRAF:

Connect ISaGRAF controller

General Modbus Device:

Connect general modbus device

Address:

Specifies a Address for this controller. The default value is 1 and the valid range is between 1 to 247.

Timeout:

Specifies timeout (Response time) value for this controller. The default value is 200 ms. A smaller timeout value may cause communication failure and a larger timeout value may reduce the performance of the client program.

Msg Delay:

Specifies message delay value for this controller. The default value is 0 ms. A smaller msg delay value may have a higher system loading, but it will have a faster data exchange speed.

Word Swap:

The "Word Swap" checkbox switches the interpretation of 4 Byte values. Sometimes we need to make the checkbox "TRUE" in order to achieve the purpose of Lo-Hi/Hi-Lo communication.

COM Port:

Specifies the COM port to be used. Please verfiy which COM port number that the RS-232 / RS-485 network is using. Wrong settings will always cause communication failure.

Baud Rate:

Specifies the baud rate to be used. Verify the module's current baud rate. A wrong setting will always cause communication error for this controller.

Parity:

Specifies the parity scheme to be used. It is one of the following values.

Value	Description
None	No parity
Even	Even
Odd	Odd

Data Bits:

Specifies the number of bits in the bytes transmitted and received.

Stop Bits:

Specifies the number of stop bits to be used. It is one of the following values.

 Value
 Description

1	1 stop bit
2	2 stop bits
1.5	1.5 stop bits

Request Tag Number:

The "Request Tag Number" sets tag value numbers that each command will get from device. For ISaGRAF, it should less than 124 for coil and register. For 7188MTCP, it should less than 498 for coil and 127 for register. The default numbers are both 122. (For Modbus standard, it can't greater than 2000 for coil and 127 for register.

Simulate I/O:

The "Simulate I/O" checkbox switches to a simulator of reading I/O. Since the simulator does not open the TCP/IP port, it is an easy way to work with the server, to configure tags or to connect clients without requiring any hardware.

Pending Time:

Minimum interval time between two access. To activate this function, NAPOPC_ST can work under optimized communication performance. If this module only needs to be accessed 1 time per 5 seconds. You can set pending time as 5000 ms. NAPOPC_ST will automatically spread time resource to other modules which are connected with each other.

OK:

Click on the "OK" button to add the new controller setting.

Cancel:

Click on the "Cancel" button to avoid any changes.

Step 5: Click on the "OK" button to add this new device.

1.6.6 Adding A New Modbus ASCII Controller

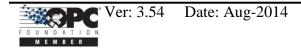
Step 1: Click on the "Add/ New Device..." menu item or the silon to add a new module.



Step 2: The "Select Device" dialog box pops up.

Step 3: Click on the "Modbus" radio button.

Step 4: Click on the "Modbus ASCII" radio button.



Controller Setting	5	
O Modbus RTU ⊙ Modbus ASCII O Modbus TCP	 O ISaGRAF O General Modbus Device IP Address 192.168.255.1 Port 502 	Address 1 Timeout 500 Msg Delay 0 D Word Swap
COM Port Setting – COM 1 Baud Rate 115200	Stop]	Bits 8

Device Name:

Names with spaces or punctuation such as "|!.," cannot be used within a module name. The clients use the "Device Name" and "Tags" to access its value. The "Device Name" can not be the same as any other module.

ISaGRAF:

Connect ISaGRAF controller

General Modbus Device:

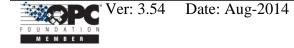
Connect general modbus device

Address:

Specifies a Address for this controller. The default value is 1 and the valid range is between 1 to 247.

Timeout:

Specifies timeout (Response time) value for this controller. The default value is 200 ms. A smaller timeout value may cause communication failure and a larger timeout value may reduce the performance of the client program.



Msg Delay:

Specifies message delay value for this controller. The default value is 0 ms. A smaller msg delay value may have a higher system loading, but it will have a faster data exchange speed.

Word Swap:

The "Word Swap" checkbox switches the interpretation of 4 Byte values. Sometimes we need to make the checkbox "TRUE" in order to achieve the purpose of Lo-Hi/Hi-Lo communication.

COM Port:

Specifies the COM port to be used. Please verfiy which COM port number that the RS-232 / RS-485 network is using. Wrong settings will always cause communication failure.

Baud Rate:

Specifies the baud rate to be used. Verify the module's current baud rate. A wrong setting will always cause communication error for this controller.

Parity:

Specifies the parity scheme to be used. It is one of the following values.

Value	Description
None	No parity
Even	Even
Odd	Odd

Data Bits:

Specifies the number of bits in the bytes transmitted and received.

Stop Bits:

Specifies the number of stop bits to be used. It is one of the following values.

Value	Description
1	1 stop bit
2	2 stop bits
1.5	1.5 stop bits

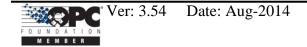
Request Tag Number:

The "Request Tag Number" sets tag value numbers that each command will get from device. For ISaGRAF, it should less than 124 for coil and register. For 7188MTCP, it should less than 498 for coil and 127 for register. The default numbers are both 122. (For Modbus standard, it can't greater than 2000 for coil and 127 for register.

Simulate I/O:

The "Simulate I/O" checkbox switches to a simulator of reading I/O. Since the simulator does not open the TCP/IP port, it is an easy way to work with the server, to configure tags or to connect clients without requiring any hardware.

Pending Time:



Minimum interval time between two access. To activate this function, NAPOPC_ST can work under optimized communication performance. If this module only needs to be accessed 1 time per 5 seconds. You can set pending time as 5000 ms. NAPOPC_ST will automatically spread time resource to other modules which are connected with each other.

OK:

Click on the "OK" button to add the new controller setting.

Cancel:

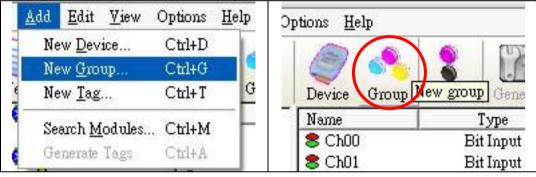
Click on the "Cancel" button to avoid any changes.

Step 5: Click on the "OK" button to add this new device.

1.7 Adding A New Group

If the device you add is "RPC", you do not need to add groups manually. NAPOPC_ST will automatically synchronize and generate the modules of "RPC".

Step 1: Click on the "Add/ New Group" menu item or the sicon to add a new group.



Step 2: The "Group" dialog box pops up.

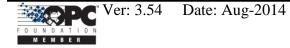
Group	
Name Cimun	OK OK
Name Group	Cancel

Name:

A "Group Name" may have any name, but avoid names with spaces or punctuation such as "[!.,". The "Group Name" must not be used twice. A group can be defined as a subdirectory containing one or more tags. A device may have many subgroups of tags. All tags belong to their module when they are scanned to perform I/O.

1.8 Adding A New Tag

If the device you add is "RPC", you do not need to add tags manually. NAPOPC_ST will automatically synchronize and generate the modules of "RPC".



1.8.1 Adding A New Tag For I/O Module

Step 1: Click on the "Add/ New Tag" menu item or the 🟅 icon to add a new tag.

<u>A</u> dd <u>E</u> dit <u>V</u> iew (Options <u>H</u> elp	Help
New <u>D</u> evice New <u>G</u> roup	Cttl+D Cttl+G) 🙈 😩 🕅 🍃
New <u>T</u> ag	Ctrl+T C	e Group lag New tag Sear
Search <u>M</u> odules	Ctrl+M	100 Type C 100 Bit Input
Generate Tags	Ctrl+A	101 Bit Input

Step 2: The "Tag Properties" dialog box pops up.

Step 3: Choose the "Settings" page. Because the tag belongs to the module-type device, the "I/O Modules" radio button is active.

Name Tag1			
Description - Device Type			
⊙ I/O Module	Туре	Analog Input	-
	Channel	0	
O Controller	Location	1 Input Regi	ister 💌
	Data Type	Bool	v
Scaling			
Settings			
6			

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:

Specifies the description text for this tag. This can be blank.

Type:

Specifies the command to be used for this tag. Different modules support different commands. For commands, please refer to a "MODULES.HTM" file in \\ICPDAS\NAPOPC_ST folder

Channel:

Specifies the channel number to be used for this tag. The "Digital Input" and "Digital Output" tags do not use this channel setting, because all channels are read with one communication.

Simulation signal:

The valid signal is SINE, RAMP and RANDOM. This field is validated when the module uses simulation I/O. Please refer to the "Adding A New Device" section.

OK:

Click on the "OK" button to add the new tag setting.

Cancel:

Click on the "Cancel" button to avoid any changes.

Scaling:

Enable:

Check this check-box to enable the "Settings..." button.

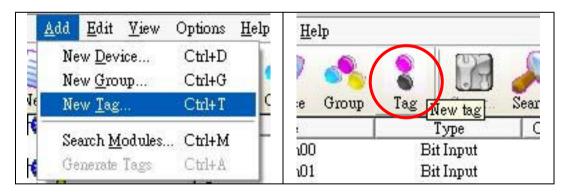
Settings:

Click on this button to set the scaling feature.

For more information, please refer to the section "1.7.3 Scaling Settings".

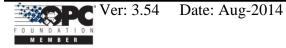
1.8.2 Adding A New Tag For Controller

Step 1: Click on the "Add/ New Tag" menu item or the 📕 icon to add a new tag.



Step 2: The "Tag Properties" dialog box pops up.

Step 3: Choose the "Settings" page. Because the tag belongs to the controller-type device, the "Controller" radio button is active.



Name Tag1			
Description			
Device Type			
O L/O Module	Туре	Analog Input	Ψ.
	Channel	0	
⊙ Controller	Location	1 Input Register	•
	Data Type	Short	•
Scaling Enable Settings			
imulation signal Sine		-1	

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:

Specifies the description text for this tag. This can be blank.

Data:

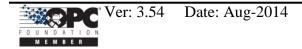
Specifies the data type of this tag which's location type is "Input Register" or "Output Register". NAPOPC_ST Server support five kinds of data type which are "Short", "Long", "Float", "Word", and "DWord".

Definition	Range
16-bit signed integer	-32768~32767
32-bit signed integer	-2147483648~2147483647
Floating-point variable -1.7E-308~1.7E+308	
16-bit unsigned integer 0~65535	
32-bit unsigned integer 0~4294967295	
	16-bit signed integer32-bit signed integerFloating-point variable16-bit unsigned integer

The data type of "Input Coil" or "Output Coil" is "Bool".

Location:

Specifies the tag address. It must be the same with the the variable address in the controller. Besides, you have to choose the location type. After you choose the location number, there are four location types you can



choose. They are "Input Coil", "Output Coil", "Input Register", and "Output Register". When you monitor controller device (see 1.3 Monitoring Device), the "Channel/Location" field will show a value according to the location and location type as below.

Location Type	Range
Output Coil	000001 - 065536
Input Coil	100001 - 165536
Input Register	300001 - 365536
Output Register	400001 - 465536

Simulation signal:

The valid signal is SINE, RAMP and RANDOM. This field is validated when the module uses simulation I/O. Please refer to the "Adding A New Device" section.

OK:

Click on the "OK" button to add the new tag setting.

Cancel:

Click on the "Cancel" button to avoid any changes.

Scaling:

Enable:

Check this check-box to enable the "Settings..." button.

Settings:

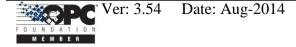
Click on this button to set the scaling feature.

For more information, please refer to the section "1.7.3 Scaling Settings".

1.8.3 Scaling Settings

In general, the "Scaling" feature is only useful for the "floating-point" data type.

caling Min	Raw Data	Scales to >	Units Min Max	1
<u>D</u> eadb	Conversio <u>Lines</u> and: 0	m r <mark>O</mark> <u>S</u> quare I - %	Root	



Raw Data:

Min: The original Minimum value. ([MinRaw]) Max: The original Maximum value. ([MaxRaw])

Scales to:

Units: The unit of the scaled value. (Just for reference only.) Min: The scaled Minimum value. ([MinScale]) Max: The scaled Maximum value. ([MaxScale])

Conversion:

Linear:

Scaled Value = ((Original Value – [MinRaw]) / ([MaxRaw] – [MinRaw])) * ([MaxScale] – [MinScale]) + [MinScale]

Square Root:

Scaled Value = ((sqrt (Original Value) – [MinRaw]) * ([MaxScale] – [MinScale])) / sqrt ([MaxRaw] – [MinRaw]) + [MinScale]

Deadband (%):

In general, keep "0" in this field.

For more information, please refer to the "4.5.1.6 Percent Deadband" section in the "OPCDA20_Cust.PDF" manual, page 68.

OK:

Click the "OK" button to save these settings.

Cancel:

Click the "Cancel" button to avoid any changes.

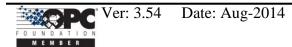
1.9 Adding Multi Tags For Modbus Device

This function only work when the device's protocol is Modbus. **Step 1:** Click on the "Add/ Multi Tags" menu item or the 📫 icon to add a new tag.

6	New <u>D</u> evice New <u>G</u> roup New <u>T</u> ag	Ctrl+D Ctrl+G Ctrl+T	G	oroup	Tag Multi Type Cna
	<u>S</u> earch Modules	Ctrl+M	000)01	Reg Output[Float]
	Generate Tags	Ctrl+A	bor)02	Reg Output[Short]
	Multi Tags		000)03	Reg Output[Float]
	· · ·			104	Reg Output[Short]

Step 2: The "Add Multi Tags Dialog" dialog box pops up.

Step 3: Choose correct "Prototype", "Data Type" and key in Modbus address.



Prototype					
C Coil Input	C Coil O	utput C	Register Inp	ut 🔿 Regi	ister Output
Data Type					
C Bool C	Short (Long	🔿 Float	C Word	C DWord
Modbus Addres	ş		Separation	1	
From 1	To	1	1	L L	OK

Prototype:

There are four kinds of prototype for modbus tag. "Coil Input", "Coil Output", "Register Input" and "Register Output".

Data Type:

"Bool": 8 bits, True or False
"Short": 16 bits, -32768 ~ 32767
"Long": 32 bits, -2147483648. ~ 2147483647
"Float": 32 bits, float numbers
"Word": 16 bits, 0 ~ 65535
"DWORD": 32 bits, 0 ~ 4294967295

Modbus Address:

"From" : modbus address number of start tag, 1 ~ 65535

"To" : modbus address number of end tag. 1 ~ 65535

Separation:

Separation numbers between each tag. 1 ~ 100

OK:

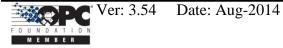
Click on the "OK" button to add the new tag setting.

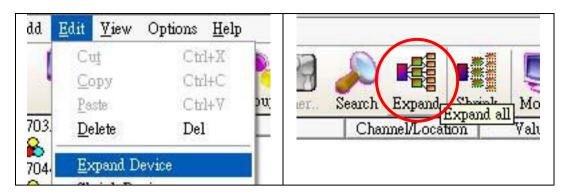
Cancel:

Click on the "Cancel" button to avoid any changes.

1.10 Expand/ Shrink Devices

Click on the "Edit/ Expand device (Shrink device)" menu item or the $\blacksquare(\blacksquare)$ icon to expand(shrink) all devices..





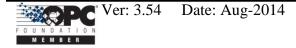
1.11 Read/Write Tags

First, you have to use the "Monitor" function to see values of tags by checking the "View/ Monitor" menu item. Select a tag and right click the mouse button. Then select the "Properties..." option. Choose the "Read & Write" page to read/write the tag.

Step 1: Click the "View/ Monitor" menu item to enable monitor.

- Step 2: Select a tag and right click the mouse button. Then select the "Properties.." option.
- Step 3: Choose the "Read & Write" page. You can see the "Tag name" and "Access right" at the first. If the access right is "Read only!", the write function is disable.

Read Value			
Value: OFF		([Read!]
Quality: Uncertain			
Timestamp: 08/30/04 10:01:5	1		
fag name: Ch00			
Access right: Read & Write!			
Write Value			
Timestamp: 08/30/04 10:01:4	19		
Quality: Uncertain			
Value:			
0			Write!



Read Value/Value:

You can press the "Read!" button to read the tag value as you saw on the "Tag-Window".

Read Value/Quality:

Three kinds of qualities, "Good", "Bad", and "Uncertain", would be shown. If the communication status is good, the quality shows "Good". If the communication status has something wrong, the quality shows "Bad". And the other situation is "Uncertain". Maybe you do not click the "View/ Monitor" menu item to enable monitor etc.

Read Value/Timestamp:

It shows the time, when you read the tag.

Tag name:

It is the same with the "Name" at the "Settings" page. You can modify it at the "Settings" page.

Access right:

Two kinds of access right, "Read Only!" and "Read&Write!", would be shown. The access right depends on what kind of tag property it is. Please refer to the "1.7 Adding A New Tag"

Write Value/Timestamp:

It shows the time, when you write the tag.

Write Value/Quality:

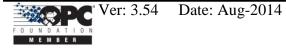
Three kinds of qualities, "Good", "Bad", and "Uncertain", would be shown. If the communication status is good, the quality shows "Good". If the communication status has something wrong, the shows "Bad". And the other situation is "Uncertain". Maybe you do not click the "View/ Monitor" menu item to enable monitor etc.

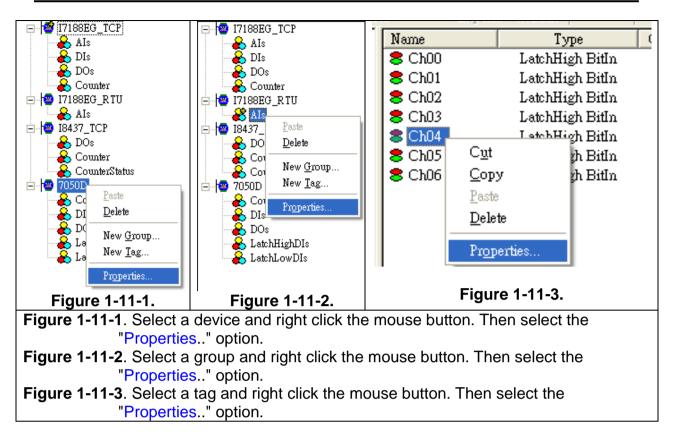
Write Value/Value:

You can press the "Write!" button to write the value you key-in to the tag. If the tag data type is "Boolean" the write value "0" means "OFF" and the write value "not 0" means "ON".

1.12 Editing A Device/Group/Tag Properties

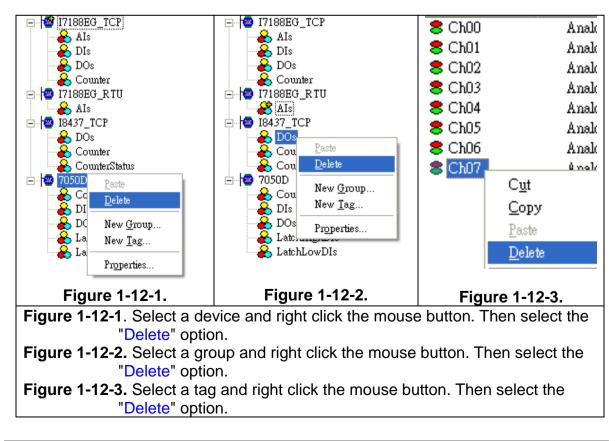
To edit a existing Device(/Group/Tag), just select the Device(/Group/Tag) and right click the mouse button. Then select the "Properties..." option.

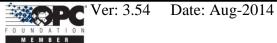




1.13 Deleting A Device/Group/Tag

To delete a existing Device/Group/Tag, just select the Device(/Group/Tag) and right click the mouse button. Then select the "Delete..." option or the ⁽²⁾ icon.



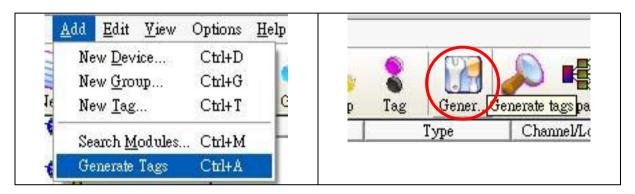


1.14 Generating Tags

This function lets you easily test the OPC server in the simulation mode. It is only valid if the selected device of module type has no sub "Module", "Group" and "Tag".

Step 1: Select a device of module type you want to generate tags.

Step 2: Click on the "Add/ Generate Tags" menu item or the encoded icon to generate tags.

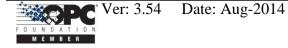


1.15 Configurate Initial Status

This function lets you configurate initial status of NAPOPC_ST server when client softwares connect to it. The ""Recent File Source" options lets user save related information in registry under "Administrator account" or "Current user account". Some DCOM application needs to adjust this option for specific scenario. The "File Open Dialog" option lets user load a file automatically or manually. The "System Tray" option can hide or minimize program of NAPOPC_ST server. And "Communication Mechanism" option lets user define the communication behavior of NAPOPC_ST. Generally, "Multi-Thread" is the best choice for high performace. However, for some particular OPC clients which can not work smoothly under "Multi-Thread" communication, user can choose "Single-Thread" instead. This function, Configurate Initial Status, can be selected only when "Monitor" function isn't running.

Step 1: Click on the "Options/ Configurate Initial Status" menu item to open "Initial Setting Dialog".





File Open Dialog	OK
💿 Last One (Auto-load, No Ask)	
🔘 User Select (Manually)	Cancel
Recent File Source	
Administrator Account	
C Current User Account	
System Tray	
🦳 Hide (Hide in Background)	
📀 Minimize (Show Icon on System	Tray)
Communication Mechanism	
C Single-Thread	

Note: "Communication Mechanism" has to be "Multi-Thread" if DCON device enables WDT function.

1.16 License Manager

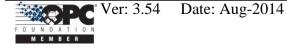
NAPOPC_ST DA Server v3.30 or later version provides "License Manager" function to manage the NAPOPC_ST license. You can purchase USB hardkey to enhance the functionality of NAPOPC_ST DA Server.

Step 1: Click on the "Options/ License Manager" menu item to open "License Manager Dialog".

File	<u>A</u> dd	Edit	⊻iew	Options	<u>H</u> elp
E	71		D	Confi	gurate Initial Status
E		J		Licen:	æ Manager 🛛 🚺
Ne	ew	Open	Save	Devi	ce Group Tag Multi

Step 2: If there is no USB hardkey plugged in, license status shows "Application version: Standard".

- 1
Сору
Authorize



Step 3: If there is a USB hardkey plugged in, license status shows how many licenses it has. For this example, it shows "3rdModbus: ALL" which means NAPOPC_ST DA Server allows using third party modbus devices.

ne_ode :		Сору
.icense status:	SiteCode :	
	63D4 CA12 174B 070D BC00 4D	B3 2EDB BDC6 67D0 CA12 17
Application version: Custom 3rdModbus: ALL	License status:	
	Application version: Custom 3rdModbus: ALL	
eKey:	SBHK Authorize	Authorize

Step 4: If you have already had USB hardkey and you want to upgrade it, you need to press "Copy" to copy SiteCode to your distributor. Your distributor will give you a SiteKey to fill it in SiteKey field and press "Authorize" to upgrade USB hardkey.

NOTE:

You can plug two identical license Hardkeys in one PC. NAPOPC will execute redundancy when one Hardkey takes place failure unexpectedly.

1.17 Help

Refer to the user's manual by Checking the "Help/ User's Manual" menu item. All PDF formatted files are best view using Acrobat Reader 5 or newer. You can install it from our CD or download a free copy from <u>Adobe's Web Site</u>.

Clicking on the "Help/ User's Manual" menu item or the ¹ icon refer to the user's manual.

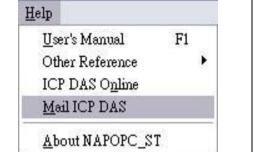
<u>U</u> ser's Manual	F1	1	A	0
Other Reference	,	F 🥊		Ø
ICP DAS O <u>n</u> line		iew	Print I	Help
<u>M</u> ail ICP DAS				

Visit our web by checking the "Help/ ICP DAS Online" menu item or contact us by checking the "Help/ Mail ICP DAS" menu item.

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

Help User's Manual	F1		1		
Other Reference		- I I	?		SC .
ICP DAS Online			Help	Web Mail	Ab
<u>M</u> ail ICP DAS					
About NAPOPC_ST	3				

Click on the "Help/ Mail ICP DAS" menu item or the 3 icon to contact us.



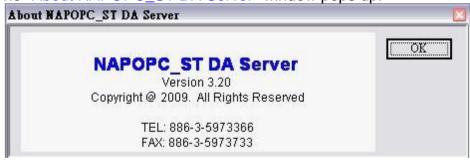


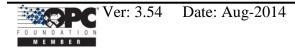
1.18 About

Click on the "Help/ About NAPOPC_ST" menu item or the *icon* to see the "About NAPOPC_ST DA Server" dialog box. It shows the version number.

Step 1: Click on the "Help/ About NAPOPC_ST" menu item.

Step 2: The "About NAPOPC_ST DA Server" window pops up.





2 Quick Start

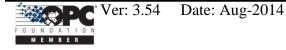
Please follow these steps:

[Configure NAPOPC_ST Server]

- Wire Modules or Controllers. Wire modules in the RS-232 / RS-485 network. (Refer to "\CD \Napdos\7000\manual \GetStart.PDF" manual.) Wire controllers to your PC.
- Configure Modules or Controllers. Use DCON Utility to set modules. (Refer to "\CD \Napdos\7000\manual \GetStart.PDF" manual.) Use ISaGRAF to configure the I-7188EG/XG or I-8xx7.
- 3. Install the OPC server. Install the NAPOPC_ST on your computer.
- Run the OPC Server. Launch the OPC server by executing " C:\ICPDAS\NAPOPC_ST\NAPOPCSvr_ST.exe"
- Search Modules. Refer to the "1.3 Search Modules..." section to search modules in the RS-485 network.
- Add a new controller Refer to the "1.5 Adding A New Device" section to add a new modbus RTU or modbus TCP controller.
- 7. Save Configuration. Save the configuration by clicking "File/Save" menu item.
- Close OPC server. Close OPC Server by clicking "File/Exit" menu item.

[Connect to NAPOPC_ST Server]

 Connect to OPC server. Run your client program and connect to our OPC server by linking "NAPOPC.Svr" or " NAPOPC.Svr.1". (Please refer to user's manual of your client software provided by your vendor.) This forces the system to run the OPC server automatically in background.



3 Connect To OPC Server

The OPC is defined by the OPC Foundation, and any client program supporting OPC can connect to OPC server (for example: Lab VIEW v5.0 and WIZCON 7.51). Any computer language supporting the COM mechanism can also connect to the OPC server directly through the COM interface.

The first section shows you how to optimize your communication. And the following sections show you how to connect to OPC server by using client program provided by Factory Soft, Inc, Lab VIEW, Server Explorer provided by National Instruments, WIZCON, iFix, InduSoft and CitectSCADA. To connect to OPC server by other OPC client, please refer to your OPC client user's manual.

3.1 Optimize Your Communication

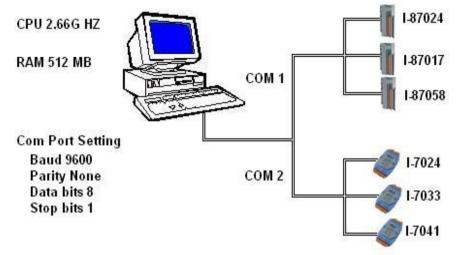
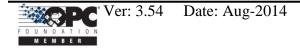
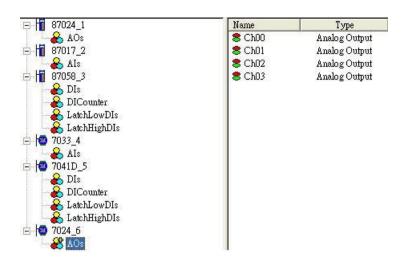


Figure 3.1.1 Communication architecture of I/O modules

Figure 3.1.1 is a figure of communication architecture of I/O modules. NAPOPC_ST server accesses to I-87024/I-87017/I-87058/I-7024/I-7033/I-7041 via serial COM port. The assumed situation, we only need the interval time of accessing I-87024 and I-7024 is 1 sec. The interval time of I-7041 and I-87058 is 3 sec. However, we want to update I-7033 and I-87017 every 100 ms. For this purpose, we can achieve it by seven steps as below.

Step 1: First of all, we try to connect all modules on COM1 and to auto search these modules.

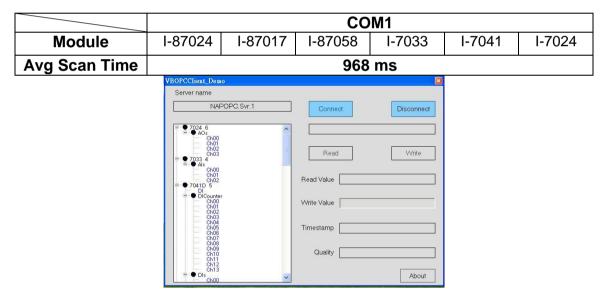




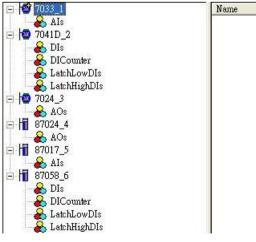
Step 2: Connect OPC client to NAPOPC_ST Server. At the status bar of

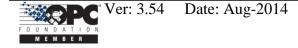
NAPOPC_ST window, it shows average scan time Avg Scan time: 968 ms when clicking any module.

We will find the average scan time is 968 ms.



Step 3: We divide these modules into two groups. I-87024/I-87017/I-87058 connects to COM1. I-7033/I-7041/I-7024 connects to COM2. And we search again.





Step 4: Connect OPC client to NAPOPC_ST server again. We can discover the average scan time separately when clicking each module. We will find the average scan time of COM1 is 391 ms, and of COM2 is 516 ms.

		COM 1			COM2	
Module	I-87024	I-87017	I-87058	I-7033	I-7041	I-7024
Avg Scan Time		391 ms			516 ms	

Step 5: Now we can set pending time to each module as below.

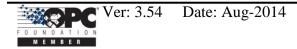
	I-7033	I-7041	I-7024
Pending Time		2000	800

	I-87024	I-87017	I-87058
Pending Time	800	—	2000

Controller Setting Port Type					
O Modbus TCP Port Address 502	Address 1				
TCP/IP Address 192.168.255.1	Timeout 200				
O Modbus RTU O ISaGRAF	Msg Delay				
O M-7K	🗖 Word Swap				
COM Port Setting COM 1 Baud Rate 9600	Parity None Data Bits Stop Bits None 8 (RTU) T				
O Request Tag Number Coil : 122	Register 122				
Simulate I/O (does not access the RS-485/Modnus device)					
Fending Time 800 mSec	OK Cancel				

Step 7: Discover the average scan time of COM1 and COM2. We can find it is at our target. The average scan time of COM1 is 62 ms. The average scan time of COM2 is 31 ms.

		COM 1			COM2	
Module	I-87024	I-87017	I-87058	I-7033	I-7041	I-7024
Avg Scan Time	62 ms			31 ms		



3.2 VB5 Client Demo Program

We provide three OPC client demo programs for Visual Basic 5.0, Visual Basic .Net and Visual C# .Net. It is placed under the "\\ICPDAS\NAPOPC_ST\Client\" folder after installation of our NAPOPC_ST server. Note: The .Net demo programs could compatibility for Visual Studio .Net 2003 or later.

Step 1: Launch the client demo program.

(The client program will search the system registry to find OPC servers. The new servers will be added to the list.)

Step 2: Select the "NAPOPC.Svr.1" OPC Server.

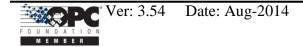
Step 3: Click on the "Connect" button.

	NAPOPC Te	st Client	000
OPC Server			
NAPOPC.S	vr.1	Connect	Disconnect
FactorySoft	Rapid.Service.1 ModbusShell.1 Shell.1 Solutions ASMBTCPO		
NAPOPC.S	vr.1	>	
OCSTK.DA			
Matrikon.O	PC.Simulation.1	1	
 Tag Value		in the second se	
Text1	Read	Loop Read	
1	117.4	Qu. 7	T -1
Counte 0	Write	Stop Loop	Exit

Step 4: Select a file which you want to use and click on the "OK" button.

Open a NAPOPC Document		
Click here to browse more files 01. ISaGRAF_TEST.tdb 02. ISaGRAF_TEST1.tdb 03. WINCON_8837.tdb 04. NAPOPC1.tdb 05 NAPOPC2.tdb	OK	

The following steps 5 ~ 6 are read operation of Modbus TCP controllers.



Step 5: Select a tag matching on your configuration.

(For example: Select the "i-8437" controller, "DO" group and "DO1" tag in the tree-view window.)

Step 6: Click on the "Read" button to read the ""MTCP_8054.DO.DO1" value.

	NAPOPC Test C	lient	000
OPC Server	<u> </u>	Connect	Disconnect
Tag Selected : 🤇	MTCP_8054.DO.DO1	>	
	DI		Û
Tag Value False	Read _ I	loop Read	
Counte 0	Write	Stop Loop	Exit

The following steps 7 ~ 9 are write operation of Modbus TCP controllers.

- Step 7: Select a tag matching on your configuration. (For example: Select the "i-8437" controller, "DO" group and "DO1" tag in the tree-view window.)
- Step 8: Fill in the "Tag-Value" field with 1.

Step 9: Click the "Write" button to write the "MTCP_8054.DO.DO1" value.

2	NAPOPC Te	st Client	000
OPC Server			
NAPOPC.Svr.	1 _	Connect	Disconnect
Tag Selected: (MTCP_8054.DO.I	DO1	
- MTCF			
÷	DI DO		
	DOI		
	DO2		
	DO4 DO5		
	DO5		*
1	1000		Lin
 Tag Value	Read	Loop Read	620

The following steps 10 ~ 12 are read operation, which loops unless you stop it.

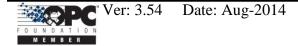
- **Step 10:** Click on the "Loop Read" to continuously read data.
- Step 11: After about 5 seconds (or more), click on the "Stop Loop" button to stop reading.
- **Step 12:** A window pops up to show the performance. Close it by clicking the "OK" button.

	NAPOPC Test Client	000
OPC Server	Connect	Disconnect
Tag Selected:	MTCP_8054.DO.DO1	
	Project1 Performance = 1435 Reads/Sec. OK DO7 DO8	
Tag Value	Read Loop Read	
False Counte 4711	Write Stop Loop	Exit

Step 13: Click on the "Disconnect" button to disconnect from the OPC server.

Step 14: Click on the "Exit" button to end the client demo program.

	NAPOPC	Test Cl	ient	000
OPC Server				\frown
NAPOPC.Svr.	1	-	Connect	Disconnect
Tag Selected :	MTCP_8054.1	DO.DO1		\smile
Tag Value	Rea			
	1/69	0. 1/0	DOD Kead	
False	1 Writ		top Loop	Exit



3.3 .Net Client Demo Program

We provide another two OPC client demo programs for Visual Basic .Net 2003 and Visual C# .Net 2003. It's placed under the following folder "\\ICPDAS\NAPOPC_ST\Client\OPC_NetClientDemo\VBOPCClient_Demo" and "\\ICPDAS\NAPOPC_ST\Client\OPC_NetClientDemo\VCSOPCClient_Demo"after installation of our NAPOPC_ST server.

Step 1: Launch the client demo program "VBOPCClient_Demo.exe" or "VCSOPCClient_Demo.exe". (The client program set "NAPOPC.Svr.1" as default OPC Server)

Step 2: Click on the "Connect" button.

VBOPCClient_Demo			
erver na			
		<u></u>	
	Server Name	Connect	Disconne
			Disconne
		· · · · • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • •
		<u></u>	<u></u>
		Read C.C.	∷ ∷ Write
		• • • • • • • • • • • • • • • • • • •	<u></u>
		Read Value :	
			• • • • • • • • • • • • • • • • • • • •
		Write Value	
		· · · · · · · · · · · · · · · · · · ·	<u></u>
		Timestamp	
		• • • • • • • • • • • • • • • • • • • 	
		<u></u>	
		C Quality	
		· · · · · · · · · · · · · · · ·	
			<u></u>
			:::::: Abou
			ADOU

Step 3: Select a file which you want to use and click on the "OK" button.

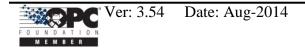
Open a NAPOPC Document		
Click here to browse more files 01. ISaGRAF_TEST.tdb 02. ISaGRAF_TEST1.tdb 03. WINCON_8837.tdb 04. NAPOPC1.tdb 05. NAPOPC2.tdb	► ► OK	

The following steps 4 ~ 5 are read operation of Modbus TCP controllers.

Step 4: Select a tag matching on your configuration.

(For example: Select the "i-8437" controller, "DO" group and "DO1" tag in the tree-view window.)

Step 5: Click on the "Read" button to read the "MTCP_8054.DO.DO1" value.



٧	BOPCClient_Demo
Server name	
NAPOPC.Svr.1	Connect Disconnect
B● MTCP_8054	MTCP_8054.D0.D01
D11 D12 D13 D14 D15 D16 D17 D18	Read Write Read Value False
B 00 D01 D02 D03	Write Value
D04 D05 D06 D07	Timestamp2004/7/8 下午 02:15:41
D08	Quality GOOD
	About

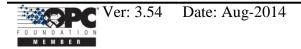
The following steps 6 ~ 8 are write operation of Modbus TCP controllers.

- Step 6: Select a tag matching on your configuration. (For example: Select the "i-8437" controller, "DO" group and "DO1" tag in the tree-view window.)
- Step 7: Fill in the "Write Value" field with 1.

Step 8: Click the "Write" button to write the "MTCP_8054.DO.DO1" value.

V	CSOPCClient_Demo
Server name NAPOPC.Svr.1 MTCP_8054 MTCP_8054 MTCP_8054 D1 D1 D1 D1 D1 D1 D1 D1 D1 D	CSOPCCliext_Demo Connect Disconnect MTCP_8054.DO.DO1 Read Write Read Value Write Value 1
D04 D05 D06 D07 D08	Timestamp 2004/7/8 下午 02:31:17 Quality GOOD
	Quality GOOD

Step 13: Click on the "Disconnect" button to disconnect from the OPC server.



3.4 LabVIEW

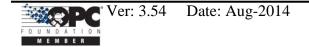
	LabVIEW	000
ile <u>E</u> dit <u>T</u> ools <u>H</u> elp		
P		
	Open an existing virtual instrument.	New
		Open Examples.
		Configure
🚳 Lab	VIEW 7 Express	Help

Step 1: Run the LabVIEW program and select "Open..." -> Example

Step 2: Click on the "Search Examples" button to get information on using OPC.

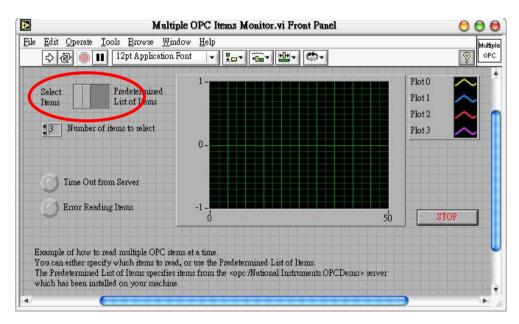
ø	NI Example Finder	00
Browse Search Submit	Double-click an example to open it.	Description
Enter keyword(s) opc	No examples match your search criteria	No available description information.
Search		
Double-click keyword (s)		
Ť		All hardware compatible with selected example. Double-click a device to view Web information
Search for:		(A Contraction of the second se
any of the words		
	•)	Ť.
	1 P.	(Setup) (Help) (Close)

Step 3: Double-click on the "Multiple OPC Items Monitor.vi" item in the middle window of NI Example Finder dialog..



	NI Example Finder	00
Browse Search Submit	Double-click an example to open it.	Description
Enter keyword (s) opc Double-click keyword (s)	6 Examples match your search criteria Browse To OPC Item vi Multiple OPC Items Monitor.vi NI DAQ OPC Client.vi NI Demo OPC Client.vi NI FieldPoint OPC Client.vi OPC Quality and Timestamp Attributes.vi	This example uses the DataSocket VIs that shipped with versions of LabVIE W prior to version 6i. These VIs are provided with LabVIE W 6i for compatibility. The DataSocket primitives shipping with LabVIE W 6i are not currently fully compatible with OPC. When using DataSocket to connect to OPC Servers, use the older compatibility DataSocket VIs.
×		All hardware compatible with selected example. Double-click a device to view Web information
Search for:		
any of the words Include ni.com examples urdware No hardware found		
140 Mala wale 10 000		1 L

Step 4: Click on the "Select Items" item in the "Multiple OPC Items Monitor.vi" demo.



Step 5: Run this demo.

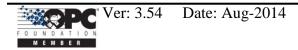
Step 6: Click on a machine name in the "Network" tree-view.

Step 7: Select the "NAPOPC.Svr" OPC server.

Step 8: Click on the "OK" button to close it.

Step 9: Select a file which you want to use and click on the "OK" button.

Step 10: Select an item (tag) in the tree-view.



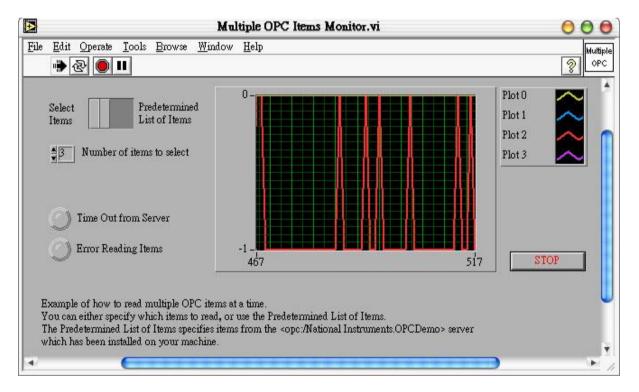
▼.	DO	• (<u>0</u> K
	🐝 DO2	C	<u>C</u> ancel
	🐝 DO3		
	💖 DO4		
	5 DO5		
	2006 2007	-	
	3 DO8		
Nation	al Instruments OPC Demo	7	
owse host:		C	Refresh

Step 11: Click on the "OK" button to add this one

Step 12: Repeat the steps 6 ~ 11 to add more items(tags).

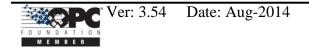
Step 13: Click on the "Cancel" button to finish adding items(tags).

Step 14: The grid window graphs a line(s) to show changes of each item (tag).

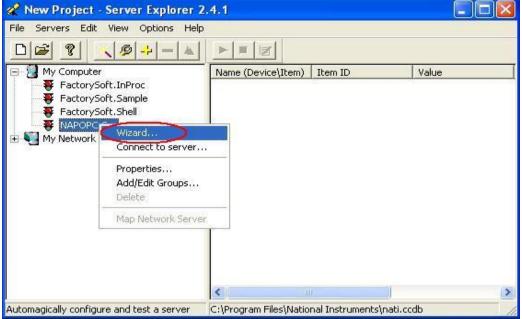


3.5 NATIONAL INSTRUMENTS

National Instruments is a comprehensive industrial automation company by providing the software, hardware, and technologies necessary to transform personal computers into powerful computer-based and networked measurement and automation systems. The ServerExplorer is one of their products for connecting to OPC Server. For more information, please visit <u>http://www.ni.com</u>



Step 1: Start ServerExplorer. Right-click on "NAPOPC.Svr", then select "Wizard".

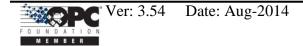


Step 2: The OPC Wizard - Connection dialog box appears. Then click on "Next>"

		Press the 'Next' button to connect to the OPC Server.
	Server:	NAPOPC.Svr
P. M. S.	Machine:	\\RABBIT
1 Parts	Run As:	Local Server (EXE)
**	\$	
		< Back Next > Cancel Help

Step 3: Select a file which you want to use and click on the "OK" button.

Step 4: Enter the **Group Name** and **Update Rate**. The name can be any name you want. Click "Next>" to continue.

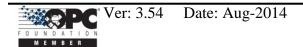


OPC Wizard - Group Creatin	Press the 'Next' button to create the OPC Group	
	Group Name: Wizard Group Update Rate (msec): 100	
	< Back Next >>> Cancel Help	

Step 5: Select all the items that you want to view from the **Available OPC Items** list. Then click "Finish".

A	Press the 'Finish' button to Available OPC Items	create th	e selected OPC Item(s). Selected OPC Items	
3 - 1	Items (Device\Item)	~	Items (Device\Item)	^
TAL SAL	17.Als.Ch00		17188EG_TCP.IO.BI1	
100	Ø 7016_17.DO		6 17188EG_TCP.IO.BI2	
PRODUCT	👉 7016_17.D0s.Ch00		👉 17188EG_TCP.IO.BI3	
T ISKE	👉 7016_17.D0s.Ch01		6 17188EG_TCP.IO.BI4	
ZIS	👉 7016_17.D0s.Ch02	>>	0 17188EG_TCP.IO.BO1	
A STATE	👉 7016_17.D0s.Ch03		🚽 👉 17188EG_TCP.10.802	
Ŧ	👉 7050D.Counter.Ch00		17188EG_TCP.IO.BO3	
BOW I	👉 7050D.Counter.Ch01	U.S.	17188EG_TCP.IO.BO4	
1 2	👉 7050D.Counter.Ch02		17188EG_TCP.IO.T1	
- marine	👉 7050D.Counter.Ch03		I7188EG_TCP.IO.V1	
F9 Sec.	👉 7050D.Counter.Ch04	-	6 17188EG_TCP.10.V2	
	🛷 7050D.Counter.Ch05	~	17188EG TCP.IO.V3	~
	<		<	>

Step 6: Now you should be able to view the OPC connection that you just created.

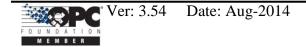


File Servers Edit View Options Help			
P	Name (Device\Item) Item ID	Value	Timestamp
- 🐺 FactorySoft.InProc		0	15:50:16:
FactorySoft.Sample		0	15:50:16:
FactorySoft.Shell		0	15:50:16:
E 8 NAPOPC.Svr		0	15:50:16:
🖻 🐡 Wizard Group	▲ I7188EG_TC I7188EG_TCP.IO	0	15:50:16:
I7188EG_TCP.IO.BI	@ 17188EG_TC 17188EG_TCP.IO	0	15:50:16:
I7188EG_TCP.IO.BI2 I7188EG_TCP.IO.BI3	▲ I7188EG_TC I7188EG_TCP.IO	0	15:50:16:
/ 17188EG_TCP.10.813	Ø 17188EG_TC 17188EG_TCP.IO	0	15:50:16:
/ 17188EG_TCP.IO.BO1	▲ I7188EG_TC I7188EG_TCP.IO.T1	100	15:50:16:
17188EG_TCP.IO.BO2		-199.4	15:50:16:
17188EG_TCP.IO.BO3	▲ I7188EG_TC I7188EG_TCP.IO.V2	-33.4	15:50:16:
I7188EG_TCP.IO.BO4	I7188EG_TC I7188EG_TCP.IO.V3	523	15:50:16:
6 I7188EG_TCP.IO.T1	I7188EG_TC I7188EG_TCP.IO.V4	23	15:50:16:
🧑 17188EG_TCP.IO.V1			
🚽 🕢 17188EG_TCP.IO.V2			
- 👉 17188EG_TCP.IO.V3			
🖉 17188EG_TCP.IO.V4			
🖅 🌄 My Network Places			
	<		>
Ready	C:\Program Files\National Instruments\nati.co	db	

Step 7: To add new items, right-click on the group name then select "Add/Edit Items".

			File Servers Edit View Options Help
Timestamp	Value	me (Device\Item) Item ID	E My Computer
15:50:16:	0	I7188EG_TC I7188EG_TCP.IO	FactorySoft.InProc
15:50:16:	0	I7188EG_TC I7188EG_TCP.IO	FactorySoft.Sample
15:50:16:	0	I7188EG_TC I7188EG_TCP.IO	FactorySoft.Shell
15:50:16:	0	I7188EG_TC I7188EG_TCP.IO	E VAPOPC.Svr
15:50:16:	0	7188EG_TC I7188EG_TCP.IO	🖻 🎡 Wizard Group 🗛 17188 Properties
15:50:16:	0	7188EG_TC I7188EG_TCP.IO	77188 Properties Add/Edit Items
15:50:16:	0	7188EG_TC I7188EG_TCP.IO	717188 Delete
15:50:16:	0	7188EG_TC I7188EG_TCP.IO	17188 Duplicate
15:50:16:	100	7188EG_TC 17188EG_TCP.IO.T1	A 17188
15:50:16:	-199.4	7188EG_TC 17188EG_TCP.IO.V1	17188 Deactivate Gro
15:50:16:	-33.4	I7188EG_TC I7188EG_TCP.IO.V2	6 I7188EG_TCP.IO.BO3
15:50:16:	523	I7188EG_TC I7188EG_TCP.IO.V3	
15:50:16:	23	I7188EG_TC I7188EG_TCP.IO.V4	🚽 👉 I7188EG_TCP.IO.T1
			- 👉 I7188EG_TCP.IO.V1
			🛛 🔗 I7188EG_TCP.IO.V2
			// I7188EG_TCP.IO.V3
			// I7188EG_TCP.IO.V4
			+ 🍓 My Network Places
)	rogram Files\National Instruments\nati.ccc	• 🏹 My Network Places

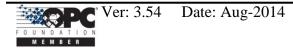
Step 8: Make sure the **Item ID** textbox at the bottom has the correct object and item name. Then click "Add>>" to add the item to the list on the right. In this example, we add the "I7188EG_TCP.IO.V5". Click "OK" when you are done.



Item Definition		Names (Device\Item)
 ☐ 17188EG_TCP ☐ 10 ☐ 17188EG_RTU ☑ 7050D ☑ 7188×8 ☑ 18437_TCP ☑ 7050D_16 ☑ 7016_17 	BI1 BI2 BI3 BI4 BO1 BO2 BO3 BO4 T1 V1 V2 V3 V2 V3 V4 V5	 I7188EG_TCP.IO.BI1 I7188EG_TCP.IO.BI2 I7188EG_TCP.IO.BI3 I7188EG_TCP.IO.BI3 I7188EG_TCP.IO.B01 I7188EG_TCP.IO.B02 I7188EG_TCP.IO.B03 I7188EG_TCP.IO.B04 I7188EG_TCP.IO.T1 I7188EG_TCP.IO.V1 I7188EG_TCP.IO.V2 I7188EG_TCP.IO.V3 I7188EG_TCP.IO.V4
Name (Device\Item):	Data Type:	
17188EG_TCP.IO.V5	Default	-
Item ID:	Access Paths:	
17188EG_TCP.IO.V5	Default	
Advanced	Active Add >>	Validatel

Step 9: Now you should be able to read all the items that you added in the main window.

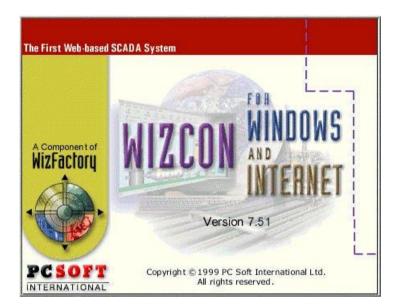
🖃 🚼 My Computer 🛛 💆	Name (Device\Item)	Item ID	Value	Timestamp
🐺 FactorySoft.InProc	💋 17188EG_TCP.IO.BI1	I7188EG_TCP.IO	0	15:52:49:823
FactorySoft.Sample	🔗 17188EG_TCP.IO.BI2	I7188EG_TCP.IO	0	15:52:49:823
FactorySoft.Shell	👉 17188EG_TCP.IO.BI3	I7188EG_TCP.IO	0	15:52:49:823
E T NAPOPC.Svr	I7188EG_TCP.IO.BI4	I7188EG_TCP.IO	0	15:52:49:823
E 🚭 Wizard Group	I7188EG_TCP.IO.BO1	I7188EG_TCP.IO		15:52:49:843
J7188EG_TCP.IO.BI	I7188EG_TCP.IO.BO2	I7188EG_TCP.IO	0	15:52:49:843
7188EG_TCP.IO.BI	67 I7188EG_TCP.IO.BO3	I7188EG_TCP.IO		15:52:49:843
7/188EG_TCP.IO.BI	👉 17188EG_TCP.IO.BO4	I7188EG_TCP.IO	0	15:52:49:843
I7100EG_TCP.IO.B	👉 17188EG_TCP.IO.T1	I7188EG_TCP.IO.T1	100	15:52:49:883
/ 17188EG_TCP.IO.B	I7188EG_TCP.IO.V1	I7188EG_TCP.IO.V1	-199.4	15:52:49:863
/ I7188EG_TCP.IO.B	I7188EG_TCP.IO.V2	I7188EG_TCP.IO.V2	-33.4	15:52:49:863
// I7188EG_TCP.IO.B	I7188EG_TCP.IO.V3	I7188EG_TCP.IO.V3	523	15:52:49:863
// I7188EG_TCP.IO.T	17188EG_TCP.10.V4	17100EG_TCP.IO.V4	23	15:52:49:863
🚽 👉 I7188EG_TCP.IO.V:	6 17188EG_TCP.IO.V5	I7188EG_TCP.IO.V5	50	5:52:49:863
🚽 🌈 I7188EG_TCP.IO.V2				
- 👉 I7188EG_TCP.IO.V				
🚽 👉 I7188EG_TCP.IO.V				
🚽 👉 👉 17188EG_TCP.IO.V				



3.6 WIZCON

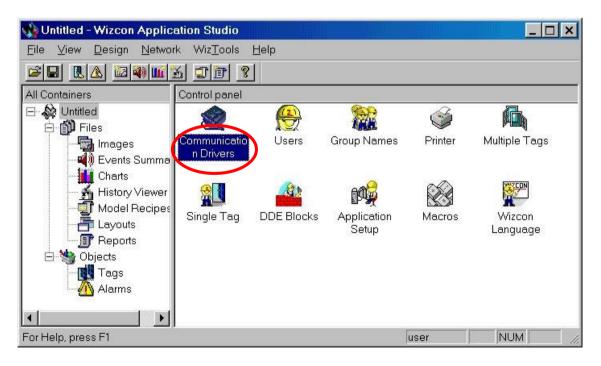
Wizcon for Windows and Internet is a powerful HMI/SCADA software package that delivers real-time and historical information from the plant floor to the boardroom and beyond. For more information, please visit <u>http://www.emation.com</u>

Step 1: Run WIZCON (Version 7.51 or newer) program.



Step 2: Create a new project.

Step 3: Click on the "Communication Drivers" icon in the right hand window.



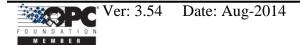
Step 4: Click on the "Add" button to add new drivers.

Communicatio	n Drivers					? ×
Kan Th	e following c	:ommunicati	on drivers are	e defined in the	application	
Logical Na	Device	Name		Parameters		
Add	<u> </u>	move	<u>P</u> ropertie:	3	Close	<u>H</u> elp

Step 5: Select the "OPC Client" item.

Step 6: Click on the "Next >" button.

-



Step 7: Enter the driver name (for example: "NAPOPC").

Step 8: Select the OPC Server Name as "NAPOPC.Svr.1".

Step 9: Click on the "Test Access" button to see if the OPC server can be accessed.

Step 10: Click on the "Finish" button.

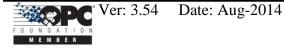
Specify a unique logical name for the driver NAPOPC OPC Server Name
NAPOPC.Svr.1
Browse
Test Access] The server was launched successfully.

Step 11: Click on the "Close" button.

Logical Name	Device	Name	Parameters
IAPOPC	OPC	OPC Client	Read/Write,Out of Block
d			
<u>A</u> dd	Remove	Properties	

Step 12: Click on the "OK" button to close the window.





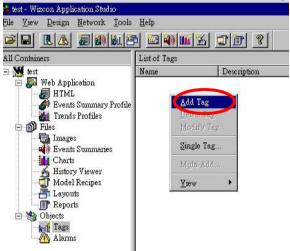
Step 13: Click on the far-right icon (the arrow) to close the WIZCON.



Step 14: Restart the WIZCON.

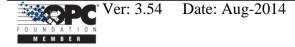
Step 15: Select the "Tags" item from the left-hand window.

Step 16: Right click the mouse button and select the "Add Tag" option to add tag(s).



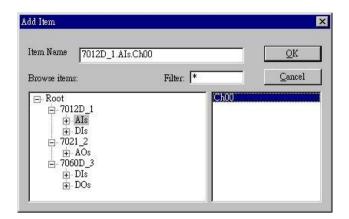
- Step 17: Enter a tag name in the "Tag Name" field.
- Step 18: Select "PLC" in the "Tag Source" field.
- Step 19: Select "NAPOPC"" in the "Driver" field.
- Step 20: Select "Always" in the "Sample" field.
- Step 21: Click on the "..." button to set the "Address" field.

	📗 Tag Definiti	on: NEW Tag		? ×
	General Re	cord DDE Link Tag Name: Description:	 	<u>G</u> roups
	Tag Source:	PLC	Sample	
	Driver: [Address: [NAPOPC	O Never Sample Rat O In Monitor	ie: 0 📑 ms.
Set Address	Tag Type:	Analog	C Always C 2000	
	Format: Tolerance:	Unsigned-16	Conversion Measured F Value 1 0 0	Ingineering
	Low Limit: High	[1 [0	Value 2 1 1	
		<u>0</u> k	Cancel Apply	<u>H</u> elp



Close

Step 22: Select a tag and click on the "OK" button.



Step 23: Click on the "OK" button to close it.

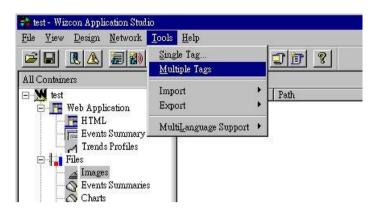
	cord DDE Link Tag Name: Description:	AIO		Groups
ag Source:	PLC	•		
	NAPOPC	Sample	itav	le Rate:
		Always		sec. 0 📑 ms
ag Type:	Analog	Always		sec. I ⁰ 🗔 ms
ag Type: Format:	Analog Unsigned-16	Conversion		
	-		1	sec. 0 ms Engineering 0
Format:	Unsigned-16		Measured	Engineering

Step 24: The right hand window shows the tag(s) that were previously added.

🛟 test - Wizcon Application Studio						- 🗆 ×
<u>File View Design Network T</u> ools	<u>H</u> elp					
	dia 🖓 🛍	y Jp ?				
All Containers	List of Tags				201	
🖃 💹 test	Name	Description	Source	Format	Driver	Addres
📄 🔚 Web Application	NA00	**************	PLC	Unsigned-16	NAPOPC	7021_:
HTML	∧ AIO		PLC	Unsigned-16	NAPOPC	7012D
Events Summary Profile						
Trends Profiles	1					
🚍 📊 Files						
Images						
Events Summaries						
History Viewer						
- 3 Model Recipes						
Layouts						
St Reports						
🖻 <u>🕼</u> Objects						
Tags						
🔤 📷 Alarms	1					
	1					

			y.	ç				(Ĉ	Ver: 3.54	Date: Aug-2014
F	0	U	Ν	D	A	Т	1	0	Ν		
		М	E	М	В	E	R				

Step 25: Click on the "Tools/ Multiple Tags" menu item.



Step 26: Click on the "OK" button to close the "Tag Filter" window.

	[011	ver][Addres	s] [Value]
Tag Filter Tag Filter Name: Driver No.: Address: Source ♥ PLC Type ♥ Analog	Ta 1 ∏ ⊡ Du <u>m</u> ny ⊽ Du <u>m</u> ny) I⊽ Compour I⊽ String	Source File <u>Wi</u> zpro <u>File (.GLS)</u> nd

Step 27: The "Tags Exerciser Program" window shows tag(s) and value(s).

File Option Help					
[Name]	[Driver][Address]	[Value]	[Rate][S	ample]	[TYPE]
AI 0 A0 0	02 7012D_1.AIs.Ch0	3 3	1.00	Y	A
A00	02 7021 2.AOs.Ch00	3	1.00	Y	A

3.7 iFix

iFIX is a powerful HMI/SCADA system that features full process visualization, data collection and management, and supervisory control. iFIX, the HMI/SCADA component of the Installation Dynamics family of automation software, is a Windows NT-based industrial automation solution for monitoring and controlling manufacturing operations. For more information, please visit <u>http://www.intellution.com</u>.

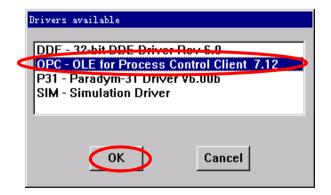
Step 1: Run iFix 2.1 and start system configuration.

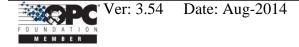
Step 2: Click on the "Add" button to add I/O drivers.

CADA Configuration
SCADA Support Database Definition
Enable C Disable Database Name: DATABASE
- VO Driver Definition
I/O Driver Name: SIM - Simulation Driver
Configured I/O Drivers
SIM - Simulation Driver Add
Configure
Setup
Delete
- Backup SCADA
SCADA Name:
OK Cancel Help

Step 3: Select the "OPC - OLE for Process Control Client 7.12" driver.

Step 4: Click on the "OK" button.





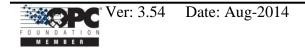
Step 5: Select the "OPC - OLE for Process Control Client 7.12" driver.

Step 6: Click on the "Configure..." button to configure the I/O driver.

SCADA Configuration								
SCADA Support Database Definition								
Enable C Disable Database Name: DATA	BASE ?							
I/O Driver Definition								
I/O Driver Name: OPC - OLE for Process Control C	Client 7.12 ?							
Configured I/O Drivers								
SIM - Simulation Driver OPC - OLE for Process Control Client 7.12	Add							
OPC - OLL IN PROCESS CONTON CHERT 7.12	Configure							
	Setup							
	Delete							
Backup SCADA SCADA Name:								
OK Cancel	Help							

Step 7: Click on the "Connect..." button.

⊙ Use Local Serve	Remote machine name or TCP/IP
C Vse Remote Server	
To run the User Interface, you must first connect to an I/O Driver OLE Automation Server.	(1)-Network
If you want to connect to the server on this machine, select "Use Local c"	
If you want to connect to a server on another machine, select "Use Remote Server" and enter the machine name, or a TCP/IP address of the machine that has the server that you	
You can use the tree browser to help select a remote machine name.	
Show this dialog on st:	

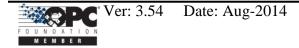


Step 8: To configure the OPC server.

C:\DYNAMICS\Untitled.opc = Po	werTool		
<u>F</u> ile <u>E</u> dit <u>V</u> iew <u>D</u> isplay Mode	Options <u>H</u> elp		
	📕 🚮		T INTER
		r Process Control Client, Versio	on 7. 12
	1 4-1		
<u>+</u> ≤	+ Di		
For Help, press F1			

Step 9: Select the "NAPOPC.Svr" and click on the "OK" button.

HATOF	C. Svr	DA Da. 1	
10	1.0		
Select	ed Server's		

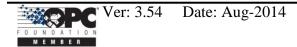


Step 10: Add server, group and items. Fill properties by clicking on the "Browse Server..." button.

💁 C:\DYNAMIICS\Untitled.opc - PowerTool
<u>F</u> ile <u>E</u> dit <u>Y</u> iew <u>D</u> isplay Mode <u>O</u> ptions <u>H</u> elp
Item Item2 Enable Group1 Descriptic OPC Item Settings: Item Item Access Path Requested Server Disable Output Iteh Date
For Help, press F1

Step 11: Select the item which you need. Click on the "OK" button.

Item IDs:	Access Paths:
□ NAPOPC.Svr □ 7018P_1 □ AIs □ Ch00 □ Ch01 □ Ch03 □ Ch03 □ Ch04 □ Ch05 □ Ch06 □ Ch07	(). 7018P_1. AI ≈. Ch02
 ItemID 7018P_1.AIs.Ch02	Access



Step 12: Enter database manager of iFix 2.1.

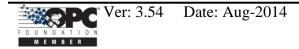
Step 13: Add relative data units.

For example: AI. Driver: "OPC OLE for Process Control Client 7.12". I/O Address: "Server1;Group1:Item1".

nalog Input - [AI1]*
Basic Alarms Advanced
Tag Name : AI1 Description Previous : Addressing Driver : OPC OLE for Process Control Client 7.12 I/O Address : Server1;Group1;Item1 Signal Conditioning None Mone Mardware Options : Scan Settings Engineering Units Low Limit 0.00
Scan Time 1 High Limit 100.00 Phase At : Units :
Save Cancel Help

Step 14: The window displays the current value of the AI unit.

	Database Manager - abase <u>E</u> dit <u>V</u> iew I			Help			_ 5 ×
	Open connection to r	ode an Time	I/O Dev	I/O Addr	Curr Value		<u> </u>
1	Al1			Server1;Group1;7018P_1.Als.Ch	26.24	1	
2]	
3]	-
4]	
5							
•							•
Open co	nnection to a node	and view the d	latabase	OFI	EDIT default	default	default

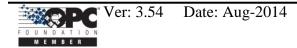


3.8 InduSoft

InduSoft Web Studio is a powerful, integrated collection of automation tools that includes all the building blocks needed to develop human machine interfaces (HMIs), supervisory control and data acquisition (SCADA) systems, and embedded instrumentation and control applications. Web Studio runs in native Windows NT, 2000, XP and CE 3.0 environments and conforms to industry standards such as Microsoft DNA, OPC, DDE, ODBC, XML, SOAP and ActiveX. For more information please visit: <u>http://www.indusoft.com/</u>

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

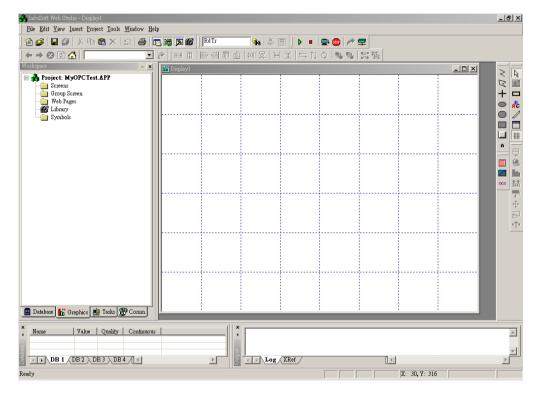
<i>\$</i>	ICPDAS - NAPOPC DA Server	000
Eile Add Edit Yiew Options Help		
New Open Save Device Goorp	Image: Search Expand Image: Se	About
Image: Second	Name Type ChanneMiccention Value Scaling Description © Ch00 Bit lapat 1 © Ch01 Bit lapat 2 © Ch03 Bit lapat 2 © Ch04 Bit lapat 4 © Ch05 Bit lapat 6 © Ch06 Bit lapat 6 © Ch07 Bit lapat 7 © Ch08 Bit lapat 9 © Ch09 Bit lapat 9 © Ch10 Bit lapat 11 © Ch09 Bit lapat 12 © Ch12 Bit lapat 12 © Ch13 Bit lapat 13	
Ready	Dis has 14 Tags	

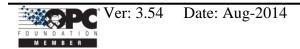


Step 2: Run the InduSoft (Version 4.1 or newer)



Step 3: Create the new project.



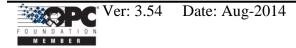


Step 4: In the Studio Workspace window, click the OPC tab, right-click the OPC folder, and click "Insert":

💑 InduSoft Web Studio - Display1					_ 8 ×
j <u>F</u> ile <u>E</u> dit <u>V</u> iew Insert <u>P</u> roject <u>T</u> ools <u>W</u> indow <u>H</u> elp					
) 🏠 🥔 日 🖉 X 🖻 🛍 X 그 🖨 💽	🛱 🔊 🍪 🔤 Rd Tr	🎭 🚠 🗐 🕨 🖷	🖳 🖳 🍘 🚍		
$ \leftrightarrow \Rightarrow \otimes \textcircled{0} \bigtriangleup \fbox{0} \Leftrightarrow ()$		曲 눼 묘 뉴 革 ⇆ ↑	↓◇ 특별 발텔		
	Display1			_ 🗆 🗵	
Project: MyOPCTest.APP					
				: :	
📓 Database 👫 Graphics 📑 Tasks 🕵 Comm					
× Name Value Quality Continuous	1	*			<u>^</u>
DB1 DB2 DB3 DB4		Log XRef		1	
			CAP	X: 1, Y: 233	
			CAP	A: 1, Y: 233	

Step 5: OPC Attributes window pops up.

Description: Server Identifier: Disable: Update Rate (ms): Percent Deadband: Status: Remote Server Name:	ore OPCC	L001.OPC		_ 🗆 🗡
1 2 3 4	Update	Rate (ms): Perce	▼ nt Deadband:	
2 2 3 4		Tag Name		ltem
3 4	1			
4	2			
	3			
5	4			
	5			
۲	4			J



Step 6: Click on the Server Identifier: drop-down menu and select the "NAPOPC.Svr".

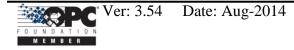
Description:	Server Identifier:	Disable:	
ICP	NAPOPC.Svr		
Read Update Rate (ms):	NSPOPC.Svr Studio.Scada.UPC	Status:	
Remote Server Name:		- 1 Å	

The configuration table for OPC has the following entries:

- Description: this field is used for documentation only. The OPC Client module ignores it.
- Server Identifier: this field should contain the name of the server you want to connect. 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 of 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 indicates the server should use the fastest practical rate.
- Percent Deadband: this field indicates the percent change in an item value that will cause a notification by the server. It's only valid for analog items.
- 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: In the first cell of the item you can right-click it to get a menu.



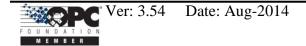
escript	tion:	Server le	6250633637	Disa	ble:	
CP		NAPOP	C.Svr			
ead U	pdate Rate (ms):	Percent	Deadband:	Stat	us;	
		Browse.	<u>.</u>			
		Browse.	<u>"</u>			
	Tag Nan	ne	ltem		Scan	
1	Tag Nam do1		ltem	i .		
1			ltem	PC Brow		
			ltem	i .		
2			Item	PC Brow	ser	
2 3			لtem	PC Brow u <u>t</u> opy	ser Ctrl+X	

Step 9: Click the OPC Browser to appear the OPC Browser window.

	801.OPC				
Descript	tion:	Server Identifier:	Disable:		
ICP		NAPOPC.Svr	×		
Read Up	pdate Rate (ms):	Percent Deadband:	Status:		
		1			
lemote	Server Name:				
remote	Server Hame.	Browse			
		DIOWSE			
					1
	Tag Name	OPC Bro	wser: 'NAPOPC.Svr' [LOCAL]		×
1	do1	Case III	st of Items		
2			7012D_2	- L	
3		Ē	🛅 Als	Can	icel
4		÷.	DIs DIs		16
5			- 🔄 DOs - 🖓 Ch00		
6			V Ch00 V Ch01		
7			Counter	Filter; -	
8			-V DI		and all the
			V DO	C B	10100
			7021_3 7060D_4	CW	and the second sec
			70805_4		oth:
		B. Letter of the second s	- <u>2060.</u> 2		

Step 10: Select an item(tag) in the tree-view.

Step 11: Click the "OK" button to add this one.



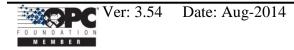
***OPCCL	D01.0PC		<u>_D×</u>
Descript ICP	ion:	Server Identifier	Disable:
Read Up	odate Rate (ms):	Percent Deadband:	Status
I Remote	Server Name:	Browse	. 1
Ē	Tag Name	e Iten	n
1	do1	7012D_2.DOs.Ch0	10 Always
2			
3			L
4			
5			
8	-		
7			
8			
•			

Step 12: Repeat the step between 7 to 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 Display2.scr. Press the"#" key three times to display "###" in the gray square.

Step 14: Click the Text Input/Output property icon on the Object Editing toolbar. *Text I/O* appears in the drop-down menu of the Object Properties window. In the Tag/Expression field type the tag name you want to link.

📓 Display2						_O×
						_
	do1	###				
	401					
	ect Properties Replace	Hint:				
-14	Keplace	ן החונין	Text			
<u>c</u>	aption: 🕅					
l l	lign Left	🔹 🗖 Borde	er Color	🔲 <u>T</u> ransparent		
	Fonts	Bac	kColor:	☑ <u>E</u> xtern transl	ation	
						-
 •						



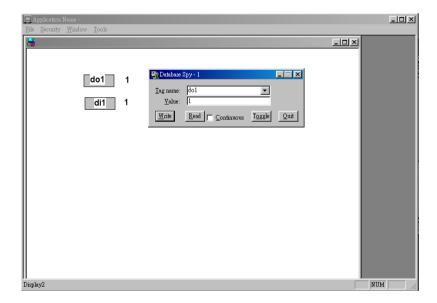
Step 15: From the Project select status. Then select the OPC Client Runtime in "Execution Tasks" tab. Click on the Startup button to setup the Startup as Automatic.

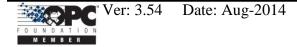
Task	Status	Startup	
🦉 Background Task		Automatic	<u>S</u> tart
📑 Database Spy		Manual	
DDE Client Runtime		Manual	Stop
🚰 DDE Server		Manual	
📷 Driver Runtime		Manual	
🔄 LogWin		Manual	Startup
ODBC Runtime		Manual	
OPC Client Runtime		Automatic	
🎲 TCP/IP Client Runtime		Manual	
TCP/IP Server		Manual	
Viewer Viewer		Automatic	

Step 16: Run the program InduSoft OPC Client Runtime module automatically or by the menu "Project->Status". After running this program, a small icon will appear in your system tray. To close the InduSoft OPC Client module, right-click its icon in the system tray, and select "Exit".



Step 17: Database Spy allows you to monitor and forces application tags, reading and writing to the database. You can find it in Tools menu.





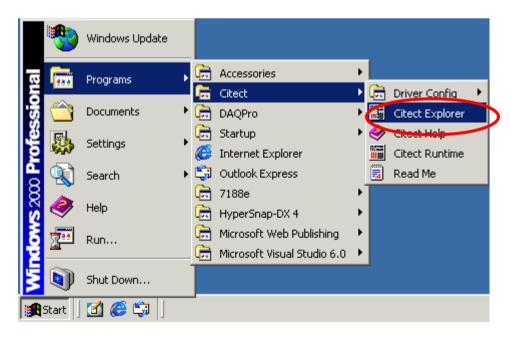
3.9 Citect SCADA

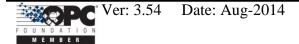
CitectSCADA is a reliable, scaleable and high performance SCADA system that includes over 100 drivers and free development software. Used in a wide range of industries, CitectSCADA enables users to reduce costs by optimizing process operations. Furthermore, it not only reduce risk with built-in redundancy for servers, networks and communications, but open data connectivity via OPC client & server, OLE DB, ODBC, DDE and API as well as over a hundred native drivers. CitectSCADA can implement in Windows 98, NT and 2000. Visit <u>http://www.citect.com</u> for more information about CitectSCADA

Step 1: Before using the CitectSCADA, you need to install and configure the OPC server in the machines you will run it (see Chapter 1).

🔐 Untitled - NAPOPC I	DA Server				
File Add Edit View	Options H	elp			
<u>% Q = & @ </u>					
P	Name	Туре	Channel/Location	Value	Description
AOs	8 Ch00	Analog Output	0	0	
🔒 AIs					
🔒 DIs					
BOS					
Counter	•				F
Ready			AOs has 1 Tag	ļs	

Step2: Start up the CitectSCADA with version 5.40.



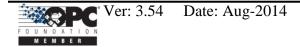


Step3: Left click the "page-marked button" or select "File / New Project..." from the CitectSCADA window menu to build a new project in the CitectSCADA.

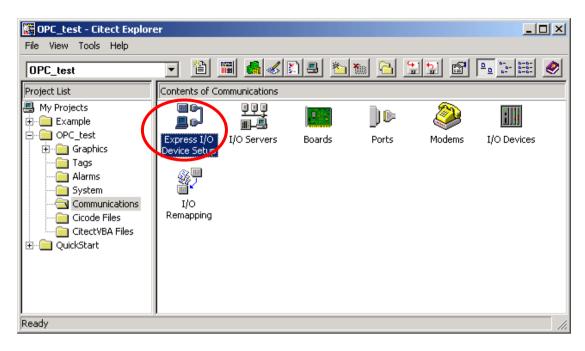
QuickStart - Citect Explo File View Tools Help	rer			
QuickStart				
Project List My Projects Example QuickStart	Contents of My	QuickStart	Example	
Ready				11.

Step4: Fill a name of new project in the blank and then click "OK button" to finish this process.

New Project		×
Name: OPC_te	st	
Description:		
Location: C:\Citeo	t\User\OPC_test	Browse
Page defaults		
Template style:	Standard	•
Template resolution:	Default	•
Show template tit	le bar	
Background colour:		
ОК	Cancel	Help

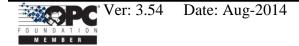


Step5: Click the "Express I/O Device Setup" icon to set all communication parameters.

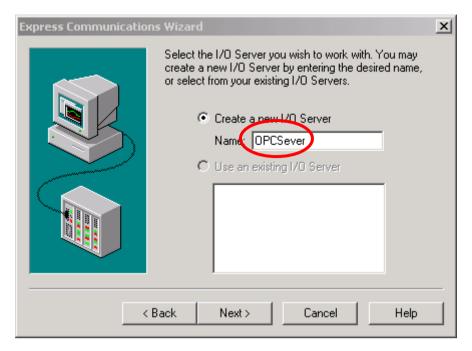


Step6: Start up the "Express Communications Wizard Dialog".



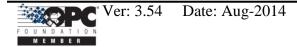


Step7: Create a new I/O Server and define a name called "OPCServer" for that one.

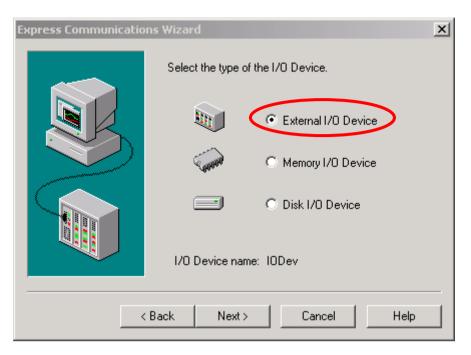


Step8: Create a new I/O Device under the I/O Server that created previously and define a name called OPCDev for that one.

Express Communications Wizard				
	Select the I/O Device you wish to work with. You may create a new I/O Device by entering the desired name, or select from your existing I/O Device Name OPCDev C Edit an existing I/O Device			
< E	Back Next > Cancel Help			

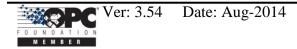


Step9: Select "External I/O Device" to be the type of OPCDev I/O Device.



Step10: Set OPC to be the method of communication for OPCDev I/O Device.

Express Communicat	ions Wizard	×
Select the manufacturer, model and method of communication for the I/O Device	Mitsubishi Modicon Moore Industries National Mematron OPC Foundation OPC Servets Induction OPC Servets Induction OPC Servets Induction	
Selected driver Manufacturer:	OPC Foundation	
Model:	OPC Servers	
Communications:	OPC	
	< Back Next > Cancel Help	

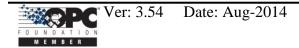


Express Communica	itions Wizard
	You need to provide an address for your I/O Device. Press the Driver Address Help button for help on the address of the driver you have selected.
	Driver Address Help
	Enter an address below or accept the default.
Address:	NAPOPC.Svr.1
C Selected driver	
Manufacturer:	OPC Foundation
Model:	OPC Servers
Communications:	OPC
	< Back Next > Cancel Help

Step11: Set Address to be "NAPOPC.Svr.1" for OPCDev I/O Device.

Step12: Do not set any parameter in this step.

Express Communicatio	ns Wizard
	Select this option if you want this I/O Device to link to an external tag database.
	Link I/O Device to an external tag database
	External tag database:
~ 3	Browse
	Database type: Concept Ver 2.1 ASCII file
	Connection string:
	Add prefix to externally linked tags
	Tag prefix:
	Automatic refresh of tags
<	Back Next> Cancel Help

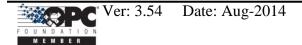


Step13: Click the "OK button" to finish the setting of communication parameters.

Express Commu	inications Wizard
	The Communications Wizard will make the following changes to the project 'OPC_test'.
	Using new I/O Server 'OPCSever'.
	Creating I/O Device 'OPCDev'. + Type: Disk I/O Device + Manufacturer: OPC Foundation + Model: OPC Servers + Communications: OPC + Address: [RUN]:OPCDev.CDK
	Press Finish to save this setup.
	Kerker Ker Kerker Kerker Ke

Step14: Open the "Citect Project Editor window" to edit Boards parameters.

🔓 Citect Project Editor [OPC_te	st] - COMPILED	_ 🗆 🗵
File Edit Tags Alarms System	Communication Tools Window	Help
📓 🔏 🔊 🖪 🔏 🖻	Express Wizard 👌 📟 🚯	. 🖾 🤌
	I/O Server	
(Boards	
	Ports	
	Modems	
	I/O Devices	
	Remapping	
Sets up the I/O Server boards		

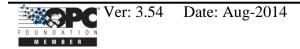


Step15: Edit Boards parameters. The Address (scanning period) is set to be "250ms", and the Special Opt is set to be blank.

🛄 Boards [C	OPC_test2]	- D ×
Server Name	OPCServer	-
Board Name	BOARD1	
Board Type	OPC	
Address	250 I/O Port Interrupt	•
Special Opt		
Comment		
<u>A</u> dd Record : 1	<u>R</u> eplace <u>D</u> elete <u>H</u> elp	•

Step16: Define two Variable Tags.

🔚 OPC_test - Citect Explor	er _ 🗆 🗙
File View Tools Help	
OPC_test	- `` `` ``````````````````````````````
Project List	Contents of Tags
■ My Projects ■ Example	
OPC_test Graphics Graphics Alarms Graphics Grap	Nariable Tage Trend Tags SPC Tags
Ready	, ///

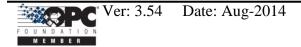


Step17: Define a variable tag for analog output of the modules 7021. The Variable Tag Name is "A_out1", the Data type is "REAL", the I/O Device Name is selected to be "OPCDev", and the Address is "7021_1.AOs.Ch00".(see Step 6)

🛄 Variable Tags [OPC_test]	
Variable Tag Name A_out1	Data Type REAL 🗨 🔺
I/O Device Name OPCDev	Address 7021_1.A0s.Ch00
Raw Zero Scale	Raw Full Scale
Eng Zero Scale	Eng Full Scale
Eng Units	Format
Comment	
Add <u>R</u> eplace <u>D</u> elete <u>H</u> elp	
Record: 1	Linked: No 🗾

Step18: Define another variable tag for analog input of the modules 7012D. The Variable Tag Name is "A_in1", the Data type is "REAL", the I/O Device Name is selected to be "OPCDev", and the Address is "7012D_2.Als.Ch00". (See Step 6)

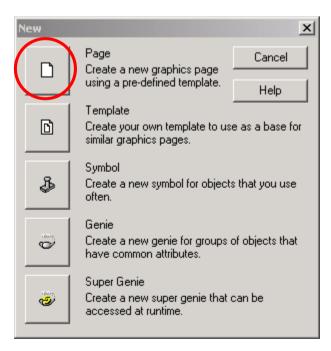
🔛 Variable Tags [OPC_test]	
Variable Tag Name A_in1	Data Type REAL 🔽
I/O Device Name OPCDev	Address Z012D_2.Als.Ch00
Raw Zero Scale	Raw Full Scale
Eng Zero Scale	Eng Full Scale
Eng Units	Format
Comment	
Add <u>R</u> eplace <u>D</u> elete <u>H</u> elp	
Record: 2	Linked: No

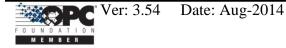


Citect Grap le Edit View		Arrange	Tools	Window	v Help					_	
New Open Close Find	Ctrl+N Ctrl+o			<u></u> 12 10		1 7	<u>8</u> 5	<u> 1921</u>	2		•
Save Save As Save All Import	Ctrl+5										
Properties Defaults											
Compile Run	Alt+F10 F5										
Print Print Setup	Ctrl+P ,										
Exit	Alt+F4										
	bage, templat					I.		-	0,0	GUIDE	GI

Step19: Create a new page in the "Citect Graphics Builder window".

Step20: Click the "page-marked button" to create a new page.





Use Template							×
Template: normal	I				Style:		
					bottom standard	_	<u> </u>
					top version2		Cancel
normal	pagemenu	poptrend	rangechart				Edit
					1	¥ F	
singletrend	speepk	spcpareto	spcxrschart		 Linked Title bar 		
					Resolution: Default		
standardchart	summary	tab1menu	tab2menu	•			Help

Step21: Select normal template to be the background and function of this page.

Step22: Select "Objects /Text " from "Citect Graphics Builder window menu" to insert a "Text Object" on the page.

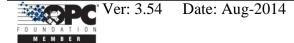
Citect Graphics Builder - [OPC_tes		
Tile Edit View Objects Text A	range Tools Window Help	_ <u>8 ×</u>
Free Hand Line	- ■ ■ ∽ ■ ■ ₽ ₽ ₽ ₽ ₽ ₩ ♦	-
Straight Line ?	<u> </u>	
Ellipse	· +*	
f(x) Polygon	+2	
Pipe		
D Text		
Aca Button		
Symbol Set		
Trend		
Cicode Object		
公		
Button Symbol Set Trend Cicode Object		
<u> </u>		
6		
		_
•		
Adds text	136,15	GUIDE GRID

Step23: Key-in the words "AO:" in the Text object. Then, left click to put the Text object on the page and set "Appearance parameters" of Text object.

[™] Appearance ∞ [™] Movement Font:	Style:	Size:	Ś
Arial	Bold	18	
Arial Arial Black Comic Sans MS Courier Courier New Fixedsys Georgia	Regular Bold Bold Italic Italic	12 14 16 18 20 22 24 ▼ 24 ▼	
Alignment Effects			o ispiraty values

Step24: Select "Objects/Number" from "Citect Graphics Builder window menu" to insert a "Number Object" on the page. Left Click to put Number object on the page. Then, set "Appearance attributes" and "Input attributes" for this Number object.

Text Properties		×
✓ Appearance 🤟 Movement 🖃	Scaling 🗹 Fill 📝 Input 🗹 Slider 🗹 Access	
C On / off C Multi-state C Array C Numeric C String		General 3D Effects 🗸 Di
Text Properties		x
✓ Appearance 🧹 Movement 🗐	Scaling 🖉 Fill 🧭 Input 🖉 Slider 🖉 Access	
Key sequence	A_out1=arg1;	Touch
		1 Keyboard Commands
	Security Same area as object Same privilege as object	d Cor
	Command area: <all areas=""> Y Privilege level: <none> Y</none></all>	nmands



Step25: Set another Text object and Number object by the same way, and the "Appearance attributes" of Text and Number object are showed below.

Text object:

Appearance Movement / S Font: Arial Arial Black Comic Sans MS Courier Courier New Fixedsys Georgia Alignment Effects Cheft Cheft Centre Strikeout Centre	Scaling Fill Inp Style: Bold Bold Bold Italic Italic	Access Size: 18 18 18 20 22 24 26 28 28 36 28 28 28 28 28 28 28 28 28 28 28 28 28	X General 3D Effects V Display Value V Visibility
Foreground:			
		DK Cancel	Apply Help

Number object:

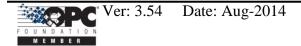
Text Properties	×
Appearance // Movement // Scaling // Fill // Input // Slider // Access /	
Multi-state Array String Format:	General 3D Effects 🗸 Display Value 🖉 Visibility
OK Cancel Apply Help	

Step26: When finish the all object and attribute setting, the page is looked like as one, which shows below.

Fil	ect Graphics Builder - [OPC_test - Untitled1] le Edit View Objects Text Arrange Tools Window Help 	
?	ب الم <u>عبد الم</u>	
đ		
57 42	AO: ####.###	
$\langle \diamond \mathcal{Q} \diamond \diamond \vartheta $	AI: ####.###	
Q		
٩		
g		_
	1 0×0 579,322 GUI	DE GRID

Step27: Select "File/Save " from "Citect Graphics Builder window menu" to save this page.

🏑 Cil	tect Graphics	Builder - [OPC_test - Untitled1]	
🛄 F	ile Edit View	Objects	Text Arrange Tools Window Help	_ 8 ×
<u></u>	New	Ctrl+N) 🖬 🖞 🖻 🕲 🕬 📲 🖓 🖓 🖄 🖄 🖄	•
	Open Close	Ctrl+0		
	Find		;	
	Save	Ctrl+S	+3	
ć	Save As	Carro		
	Save All			
4-	Import			
	Properties			
2_	Defaults		AO: ####.###	
٦ 	Compile	Alt+F10	.	
_ ک	Run	F5	AI: ####.###	
\geq	Print	Ctrl+P		
신신	Print Setup			
<u> </u>	Exit	Alt+F4		
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Save	s the active pag	e	🖬 0×0 🕂 50,3 GU	IDE GRID

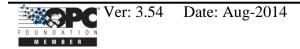


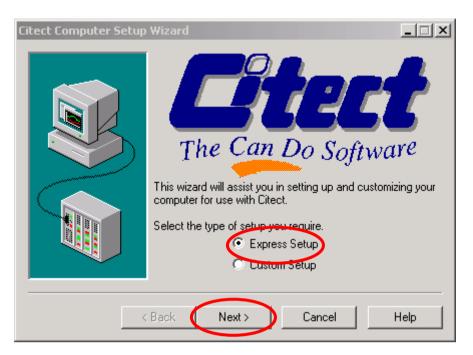
Save As Page	Template	Symbol	Genie	Super Genie
Page:	Proje OPC	ect: _test	Preview: 🔽 Enable	
	exa incl	mple ude 72	<u> </u>	Cancel
		test ckstart		New
-	T T		V F	Delete
				Help

Step28: Fill the name of this page and save it under OPC_test project.

Step29: Left click the "computer-marked button" to define the role of this computer.

GPC_test - Citect Explor e File View Tools Help	er					_[
OPC_test				<u>*</u> 🔁		<u>0</u>	<u>@</u>
Project List My Projects Example OPC_test Graphics Gra	Contents of OPC Graphics	Tags	Alarms	System	Communica	Cicode Files	
Ready							///



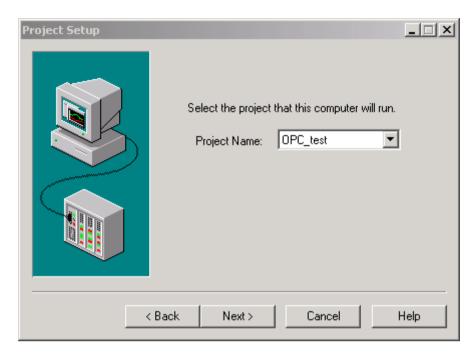


Step30: Start up the Citect Computer Setup Wizard.

Step31: Select the "Stand-alone computer" item to be the role of this computer.

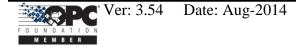
Computer Role Setup	×
Computer Role Setup	Select the role of this computer. Stand-alone computer Server and Display Client Network computer Server and Display Client Manager Client Manager Client
	Back Next > Cancel Help

Step32: Select the project "OPC_test" to be the project that this computer will run.



Step33: Click the "Next button" to next step.







Step34: Left click the "Finish button" to finish the computer setup.

Step35: Select OPC_test project and press "F5" to run this project. Compare the NAPOPC Server monitor and CitectSCADA runtime window.

🔐 Untitled - NAPO	PC DA Ser				🛗 page	1		
File Add Edit Vi	ew Option:	s Help			3			
<u> @&\$⊅</u>	X B							
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🔏 AIs								
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Ready				AIs //				

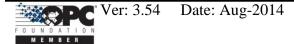


Image: Second secon	File Add Edit View Options		0.4		
	File Add Edit View Options	Help ype Chann Value	AO:	1.234	

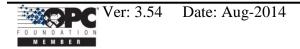
Step36: Key-in the value "1.234" to output a voltage via the module 7021.

Step37: Both NAPOPC_ST Server monitor and CitectSCADA runtime window show the analog input of the modules 7012D is 1.231V.

🔢 Untitled - NAPO	PC DA Ser	ver			🛗 page	:1		- D ×
File Add Edit Vie	ew Option	s Help			?			
🔍 🛎 😞 🚳	X	C.						
7021_1	Name		Chann					
AOs	8 Ch00	An	0	1.231	ð			
🔏 AIs								
DIs					\$			
Counter						AO:	4 0 2 2	
						AU:	1.233	
					오	AI:	1.231	
						~1.	1.231	
					Q			
					$ \odot $			
	•			•	g			
Ready				AIs //				

Step38: Check if the analog output value of the modules 7021 that showed in the NAPOPC_ST Server monitor is 1.234V.

	🖞 Untitled - NAPOI	PC DA Server				<u> </u>	🔛 page 1			_ 🗆 ×
_	File Add Edit Vie		Þ				?			
	🔊 名 🛎 🔎	X 🖻 🛍								
Г	7021_1	Name	Туре	Channel/Location	Scaling	Value	<u> </u>			
	AOS 7012D_2	8 Ch00	Analog Output	0		1.233	đ			
	DIs						 			
	DOs									
							· 윤	AO:	1.233	
							-℃	AI:	1.232	
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4 Remote Accessing

OPC Client has two ways to access the OPC Server. One is called "Local Accessing", and the other is called "Remote Accessing". If the OPC Client and the OPC Server are at the same computer, we said this kind of architecture is "Local Accessing". In other words, if the OPC Client should access OPC Server through a network, we said this kind of architecture is "Remote Accessing".

The following figure shows the integrated architecture including "Local Accessing" and "Remote Accessing". At the real Process Industry, the two ways are often used at the same time. At the Process Management Layer, we often use "Local Accessing" architecture to monitor and control manufacturing processes. At the Business Management Layer, we just set up the OPC Client to collect the process information from the Process Management Layer. If you just want to construct the "Local Accessing" architecture, you do not need to read this chapter. If you want to construct the "Remote Accessing" architecture, you have to know how to set up the DCOM between OPC Client and OPC Server.

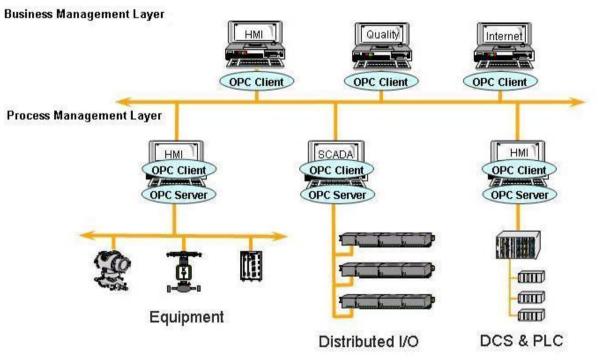


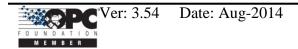
Figure 4-0-1 Local access and Remote access architecture.

4.1 System Requirement

To access a remote OPC server over a network, it is required to enable the DCOM mechanism on both stations, where the client and server are resided.

It is not possible to launch a secure process on a Windows 95 computer from a client computer. All processes in Windows 95 run in the security context of the currently logged-on user; therefore, DCOM on Windows 95 does not support remote activation. A server application on a Windows 95 computer will have to be launched manually or by some other mechanism to be accessed by a client application on another computer. Consequently, the "DefaultLaunchPermissions" and "LaunchPermissions" registry values have no affect on Windows 95.

Platform	Does the platform support the DCOM?
Windows 95	No. Users need to download and install the DCOM95.EXE and DCM95CFG.EXE from Microsoft's web site to enable the remote access.
Windows 98	Yes. Windows 98 supports the DCOM mechanism. It is recommended to upgrade to the newest version of DCOM98. The newest DCOM98 is also available at Microsoft's web site.
Windows NT 4.0	Yes. Windows NT 4.0 supports the DCOM mechanism. It is recommended to upgrade to the newest Service Pack for Windows NT 4.0 (Service Pack 3 or newer one).
Windows 2000	Yes. Windows 2000 supports the DCOM mechanism.
Windows XP	Yes. Windows XP supports the DCOM mechanism.



4.2 Configuring DCOM

Before making changes, register the server application in the registry of both the client and server computers. This may involve either running the server application setup program or running the server application, then shutting it down on both computers. The server application does not need to reside on the client computer.

If the server uses custom interfaces, the marshaling code must be installed on the client and server computers. Automation servers that support "vtbl-binding" must install their type libraries on the client and server computers. Automation servers that do not support "vtbl-binding" do not need to install their type libraries on the client computer.

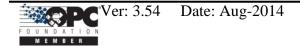
After changing the registry, run the client application on the client computer. The DCOM looks at the server application registry entries on the client computer and determines the name of the server computer. It will then connect to the server computer, use the server computer registry to determine the location of the server application, and start the server application on that computer.

You can change the registry with the DCOMCnfg.exe tool, the OLE Viewer tool, or manually. For more information on using OLE Viewer or manual changes, please refer to the "Q158582, HOWTO: Configure a Non-DCOM Server and Client to Use DCOM" article on Microsoft's web site. For more information on using DCOMCnfg.exe to configure the DCOM, please refer to "Inside Distributed COM", written by Guy Eddon and Henry Eddon in 1998 for Microsoft Press.

This section shows you how to configure the DCOM status with DCOMCnfg.exe graphic-driven utility (can be found in the Windows NT system32 folder or in the Windows95/98 system folder) on the client and server computer.

The following table shows four combinations of DCOM settings related to NAPOPC_ST DA Server. You can see XPAC and PC can be client site and server site with each other, but WinPAC only can be server site against PC. The limitation is due to DCOM security. We only choose Windows XP for example to set up DCOM because there are too many kinds of OS on PC. You can use other Microsoft desktop operation system on our PC.

Client Site	Server Site
PC(NAPOPC_ST Server)	PC(NAPOPC_ST Server)
PC(NAPOPC_ST Server)	XPAC(NAPOPC_XPE Server)
XPAC(NAPOPC_XPE Server)	PC(NAPOPC_ST Server)
PC(NAPOPC_ST Server)	WinPAC(NAPOPC_CE5 Server)



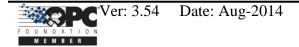
4.2.1 Configuring On the Server Site (XPAC) Configuring the Firewall

Step1: By default the windows firewall is set to "On". This setting is recommended by Microsoft and by OPC to give your machine the highest possible protection. For trouble shooting, you may wish to temporarily turn off the firewall to prove or disprove that the firewall configuration is the source of any communication failure.

Note: It may be appropriate to permanently turn off the firewall if the machine is sufficiently protected behind a corporate firewall. When turned off, the individual firewall settings outlined here need not be performed to allow OPC communication.

🐸 Windows Firewall 🛛 🔀
General Exceptions Advanced
Windows Firewall is helping to protect your PC
Windows Firewall helps protect your computer by preventing unauthorized users from gaining access to your computer through the Internet or a network.
On (recommended)
This setting blocks all outside sources from connecting to this computer, with the exception of those selected on the Exceptions tab.
Don't allow exceptions
Select this when you connect to public networks in less secure locations, such as airports. You will not be notified when Windows Firewall blocks programs. Selections on the Exceptions tab will be ignored.
🔯 🔿 Off (not recommended)
Avoid using this setting. Turning off Windows Firewall may make this computer more vulnerable to viruses and intruders.
What else should know about Windows Firewall?
OK Cancel

Step 2: Select the .Exceptions tab and add all OPC Clients and Servers to the exception list. Also add Microsoft Management Console (used by the DCOM configuration utility in the next section) and the OPC utility OPCEnum.exe found in the Windows\System32 directory.

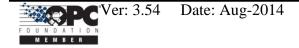


🖉 Windo	ows Firewa	II	X
General	Exceptions	Advanced	
program to work	ns and service	locking incoming network connections, exce s selected below. Adding exceptions allows s ht increase your security risk.	
Name			~
Contractions of the second sec	e and Printer S en Agent.exe aphWorX32 .SEngine.exe cense Monitor crosoft Manay PC DataSpy PC DataSpy PC Simulator emote Assistar	ver.exe jement Console	
🗹 Disp		Add Port Edit	<u>D</u> elete

In the Add a Program dialog, there is a listing of most applications on the machine, but note that not all of them show up on this list. Use the "Browse" button to find other executables installed on the computer.

Note: Only EXE files are added to the exceptions list. For in-process OPC Servers and Clients (DLLs and OCXs) you will need to add the EXE applications that call them to the list instead.

To allow communications with a pro select the program, or click Browse Programs:	gram by adding it to the Exceptions list, to search for one that is not listed.
Alarm Logger Configurator	~
Rever Corfigurator	
AlarmWorX32	
Carousel	
😿 DataWorX32	
DBOPCServerConfigurator	
TrDCOM	
🧾 FreeCell	
🛐 GenDOS3 to GFW16	
🔤 GenDOS4 to GFW16	
🖾 GenStatistics Viewer	~
Path: C:\Program Files\ICON	ICS\GENESIS-32\Bin\ <u>B</u> rowse



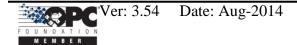
Step 3: Add TCP port 135 as it is needed to initiate DCOM communications, and allow for incoming echo requests. In the Exceptions tab of the Windows Firewall, click on Add Port.

Wind	ows Firewa	Ш				
General	Exceptions	Advanced				
progran to work		es selected bi ght increase y	elow. Addin	g exception	ons, except for l ns allows some p	
Nam	e					~
🗆 Fil	le and Printer !	Sharing				
🗹 Ge	enAgent.exe					
🗹 Ge	enRegistrarSe	rver.exe				
🗹 Gr	raphWorX32					
🗹 L4	\SEngine.exe					
🗹 Lie	cense Monitor					
🗹 Mi	icrosoft Manag	gemert Cons	ole			-
	PC DataSpy					
🗹 OF	PC Simulator					
🗹 Re	emote Assistar	nce				1
_□B/	emote Deskto	n				
Add	Program	Add Por	t	Edit	Del	ete
	1.1.2.					
Dier	olay a notificat	ion whon Wi	ndowo Firov	uall blooks		
The Dist	olay a <u>ri</u> ouncau	Ion when wi	NOOMS FILES	Vall DIUCKS (a program	
<u>What a</u>	<mark>are the risks of</mark>	allowing exc	eptions?			
					ОК	Cancel

In the Add a Port dialog, fill out the fields as follows: Name: DCOM Port number: 135

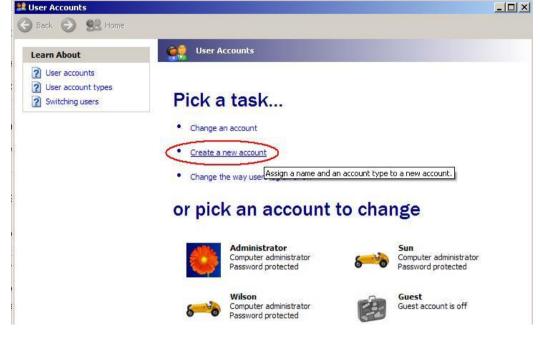
Choose the TCP radio button

Add a Port	
	to open a port through Windows Firewall. To find the port col, consult the documentation for the program or service you
<u>N</u> ame:	ОСОМ
Port number:	135
	⊙ICP OUDP
What are the risks	of cpening a port?
Change scope	OK Cancel



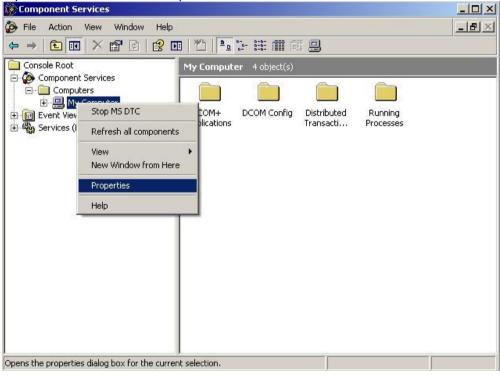
Creating the Account

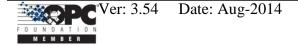
Step 1: Create a account which must be the same with the account of client site.



Configuring DCOM

Step 1: Run the dcomcnfg.exe program to launch component services. Right clieck "My Computer" and choose "Properties".





Step 2: Select the "Default Properties" tab page.

Step 3: Use the following settings:

Field Name	Set to
Enable Distributed COM on this computer	Checked
Default Authentication Level:	Default
Default Impersonation Level:	Identify

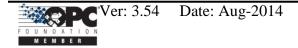
My Computer Properties
Default Protocols MSDTC COM Security General Options Default Properties
Enable Distributed COM on this computer
Enable COM Internet Services on this computer
Default Distributed COM Communication Properties
The Authentication Level specifies security at the packet level.
Default Authentication Level:
Default
The impersonation level specifies whether applications can determine who is calling them, and whether the application can do operations using the client's identity.
Default Impersonation Level:
Identify
Security for reference tracking can be provided if authentication is used and that the default impersonation level is not anonymous. Provide additional security for reference tracking
OK Cancel Apply

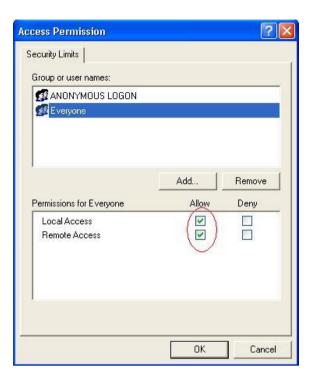
Default Protocols MSDTC COM Security Access Permissions You may edit who is allowed default access to applications. You may also set limits on applications that determine their own permissions. Edit Limits Edit Default Launch and Activation Permissions You may edit who is allowed by default to launch applications or activate objects. You may also set limits on applications that determine their own permissions. Edit Limits Edit Default	General	Options	Default Properties
You may edit who is allowed default access to applications. You may also set limits on applications that determine their own permissions. Edit Limits Edit Default Launch and Activation Permissions You may edit who is allowed by default to launch applications or activate objects. You may also set limits on applications that determine their own permissions.	Default Protocols	MSDTC	COM Security
Launch and Activation Permissions You may edit who is allowed by default to launch applications or activate objects. You may also set limits on applications that determine their own permissions.	You may edit who is		
You may edit who is allowed by default to launch applications or activate objects. You may also set limits on applications that determine their own permissions.		Edit Limits	Edit Default
	aetermine their own		
	aetermine their own	Edit Limits	Edit Default

Step 4: Select the "COM Security" tab page.

Step 5: Click on the "Edit Limits..." of "Access Permissions" button to set.

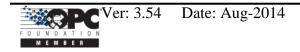
ccess Permission		?
Security Limits		
Group or user names:		
ANONYMOUS LOGON		
Permissions for ANONYMOUS	Add	Remove
Local Access Remote Access		>8
		1
	OK	Cancel





Step 6: Click on the "Edit Default..." of "Access Permissions" button to set.

efault Security Group or user names: Contempone Contem		
Permissions for Everyone Local Access Remote Access	Add Allow	Remove Deny

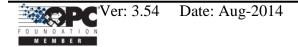


Step 7: Click on the "Edit Limits..." of "Launch and Activation Permissions" button to set.

iroup or user names: Administrators (ZIBET \Ar Everyone	dministrators)	
'ermissions.f or Everyone	Add	Remove Deny
Local Launch Remote Launch Local Activation Remote Activation	N N N N N	0000

Step 8: Click on the "Edit Limits..." of "Launch and Activation Permissions" button to set.

Administrators [ZIBET\Adr Everyone INTERACTIVE SYSTEM	in istrators)	
ermissions for Everyone	Add	Remove
LocalLaunch		
Remote Launch		
Local Activation		
Remote Activation	~	

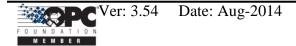


Step 9: Right click on the "NAPOPC_XPE DA Server" of "DCOM Config" button and select "Properties".

e Action View Window Help → 🔁 📧 🗙 😭 🙆 😫 🖬					
Console Root\Component Services	Computers\My	Computer	DCOM Config		
🖻 🧰 Computers 📃 🔺	DCOM Config				
My Computer GOM+ Applications	and Suppor	Uploa	WBEM	Provider Su	Aspnet. Sn
DCOM Config					-
🕀 🚸 AcroPDF 🕀 🚸 Adobe Acrobat D	MMC Applicati	MobSync	MPriborDB	MSDAINITI	NAP Agent Service
ArchiverService Blocked Drivers					
COM+ Event Sys Ometry Comevents.Come Comevents.Come Ometry Comevents.Come	NAPOPC_XPE DA Server	netman	NetMeeting	Network Provisioni	OpcEnum
Controllering Class Defrag FAT engin		View			
🕀 💑 Defrag NTFS eng 🔳		Properties			

Step 10: Select the "Security" tab page and click "Edit..." of "Configuration Permissions". To make sure there is "Everyone" in "Group or user names" and allow "Full Control" and "Read"

Launch and Activation Permissions			
C Customize	Edit	Change Configuration Permission	
Access Permissions		Security Group or user names:	
C Use Default	Edit	Administrator (DEM-03WQK3Cl4HB\Administrator) Administrators (DEM-03WQK3Cl4HB\Administrators CREATOR OWNER Everyone]
Configuration Permissions			emov
€ Customize	Edit	Full Control)eny
OK Car	ncel Apj	Read Special Permissions	
	4	For special permissions or for advanced settings,	



Step 11: Select the "Identity" tab page and check "The launching user"

NAPOPC_ST DA Server Properties	? 🔀
General Location Security Endpoints Identity	
Which user account do you want to use to run this application?	
C The interactive user.	
The launching user.	
C This user.	
User: Browse	
Password:	
Confirm password:	
C The system account (services only).	
OK Cancel Apply	

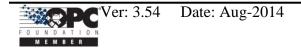
Step 12: Restart XPAC

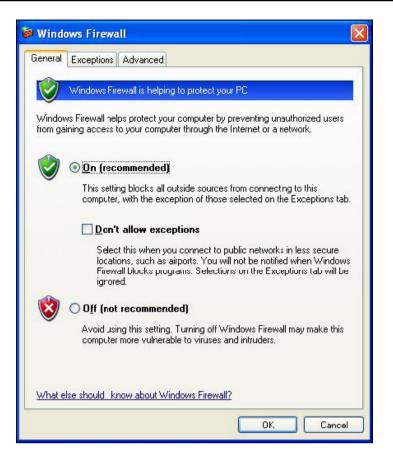
Shut Down Copyright © Microsoft Cor		Window Standard	s Embed	⊻ Ided Microsoft
	What do you	want the computer to o	do?	
	Log off Admi	inistrator	•	
	Log off Admi Shut down	nistrator	6	
	Restart			
	Stand by			
		OK	Cancel	Help

4.2.2 Configuring On the Server Site (PC) Configuring the Firewall

Step1: By default the windows firewall is set to "On". This setting is recommended by Microsoft and by OPC to give your machine the highest possible protection. For trouble shooting, you may wish to temporarily turn off the firewall to prove or disprove that the firewall configuration is the source of any communication failure.

Note: It may be appropriate to permanently turn off the firewall if the machine is sufficiently protected behind a corporate firewall. When turned off, the individual firewall settings outlined here need not be performed to allow OPC communication.

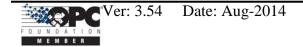




Step 2: Select the .Exceptions tab and add all OPC Clients and Servers to the exception list. Also add Microsoft Management Console (used by the DCOM configuration utility in the next section) and the OPC utility OPCEnum.exe found in the Windows\System32 directory.

	Advanced blocking incoming network con	
to work better but n Programs and Serv	night increase your security risk. ices:	
Name		<u>^</u>
File and Printe	r Sharing	
GenAgent.exe		
GenRegistrar9		
GraphWorX32		
LASEngine.ex		
License Monit		
	agement Console	
OPC DataSpy		
OPC Simulator		
Remote Assist		~
✓ Add Program ✓ Display a notific	Add Port Ed	
What are the risks	of allowing exceptions?	

In the Add a Program dialog, there is a listing of most applications on the machine,

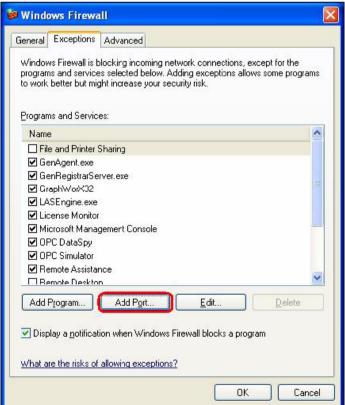


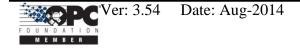
but note that not all of them show up on this list. Use the "Browse" button to find other executables installed on the computer.

Note: Only EXE files are added to the exceptions list. For in-process OPC Servers and Clients (DLLs and OCXs) you will need to add the EXE applications that call them to the list instead.

Add a Pro	gram	×
	ommunications with a program by adding it to the Exceptions list,	
1.00	program, or click Browse to search for one that is not listed.	
Programs:		-
	Logger Configurator	
Contract of Contra	Server Corfigurator	
AlarmV		
Carous		
🔀 DataW		
	PCServerConfigurator	
SODID 🔮		
StreeCe		
	OS3 to GFW16	
	OS4 to GFW16	
🔤 GenSt	tatistics Viewer 🛛	
Path:	C:\Program Files\ICONICS\GENESIS-32\Bin\	
		-
Change sci	cope OK Cancel	

Step 3: Add TCP port 135 as it is needed to initiate DCOM communications, and allow for incoming echo requests. In the Exceptions tab of the Windows Firewall, click on Add Port.



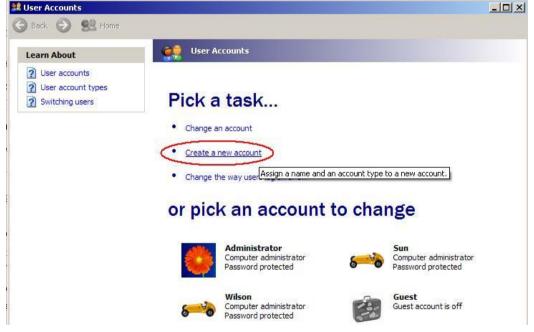


In the Add a Port dialog, fill out the fields as follows: Name: DCOM Port number: 135 Choose the TCP radio button Add a Port Use these settings to open a port through Windows Firewall. To find the port number and protocol, consult the documentation for the program or service y want to use.

<u>N</u> ame:	DCOM	
Port number:	135	

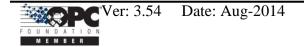
Creating the Account

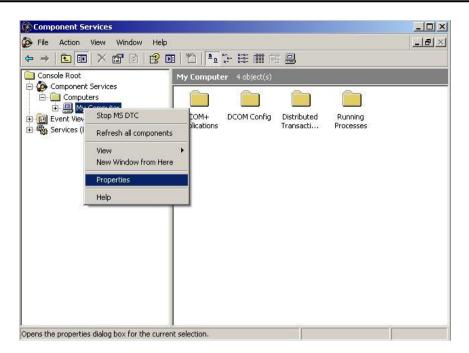
Step 1: Create a account which must be the same with the account of client site.



Configuring DCOM

Step 1: Run the dcomcnfg.exe program to launch component services. Right clieck "My Computer" and choose "Properties".



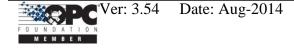


Step 2: Select the "Default Properties" tab page.

Step 3: Use the following settings:

Field Name	Set to
Enable Distributed COM on this computer	Checked
Default Authentication Level:	Default
Default Impersonation Level:	Identify

My Computer Properties	? 🛛			
Default Protocols MSDTC COM Security General Options Default Properties				
Enable Distributed COM on this computer				
Enable COM Internet Services on this computer				
Default Distributed COM Communication Properties	- I			
The Authentication Level specifies security at the packet level.				
Default Authentication Level:				
Default				
The impersonation level specifies whether applications can determine who is calling them, and whether the application can do operations using the client's identity.				
Default Impersonation Level:				
Identify				
Security for reference tracking can be provided if authentication is used and that the default impersonation level is not anonymous. Provide additional security for reference tracking				
OK Cancel Apply				

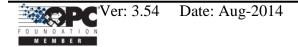


General	Options	Default Properties
Default Protocols	MSDTC	COM Security
ccess Permissions —		
		s to applications. You may e their own permissions.
	Edit Limits	Edit Default
aunch and Activation	Permissions	
You may edit who is	allowed by default to la	
You may edit who is	allowed by default to la u may also set limits on	
You may edit who is activate objects. You	allowed by default to la u may also set limits on permissions.	applications that
You may edit who is activate objects. You	allowed by default to la u may also set limits on	
You may edit who is activate objects. You	allowed by default to la u may also set limits on permissions.	applications that
You may edit who is activate objects. You	allowed by default to la u may also set limits on permissions.	applications that
activate objects. You	allowed by default to la u may also set limits on permissions.	applications that
You may edit who is activate objects. You	allowed by default to la u may also set limits on permissions.	applications that
You may edit who is activate objects. You	allowed by default to la u may also set limits on permissions.	applications that
You may edit who is activate objects. You	allowed by default to la u may also set limits on permissions.	applications that

Step 4: Select the "COM Security" tab page.

Step 5: Click on the "Edit Limits..." of "Access Permissions" button to set.

ess Permission		?
ecurity Limits		
Group or user names:		
ANONYMOUS LOGON		
	Add	Remove
Permissions for ANONYMOUS		
LOGON	Allow	Deny
Local Access Remote Access		



iroup or user names: ANONYMOUS LOGON Everyone		
annia (a Francisca	Add	Remove
ermissions for Everyone Local Access Remote Access		Deny

Step 6: Click on the "Edit Default..." of "Access Permissions" button to set.

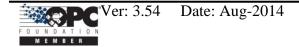
iroup or user names:		
🕵 SELF 🕵 SYSTEM		
	Add	Remove
ermissions for Everyone	Allow	Deny
Local Access Remote Access		

Step 7: Click on the "Edit Limits..." of "Launch and Activation Permissions" button to set.

curity Limits iroup or user names: Administrators (ZIBET\Adr Everyone	ninistrators)	
ermissions for Everyone	Add	Remove Deny
Local Launch		
	and the second se	
Remote Launch		
Local Activation		
Local Activation		
Local Activation		
Local Activation		

Step 8: Click on the "Edit Limits..." of "Launch and Activation Permissions" button to set.

Administrators [ZIBET\Adr Everyone INTERACTIVE SYSTEM	in istrators)	
ermissions for Everyone	Add	Remove
LocalLaunch		
Remote Launch		
Local Activation		
Remote Activation	~	

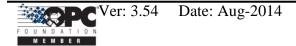


Step 9: Right click on the "NAPOPC_ST DA Server" of "DCOM Config" button and select "Properties".

Component Services					
File Action View Window Help					
			9		
Console Root\Component Services\	Computers\My	Computer\	DCOM Config		
Computers	DCOM Config				
My Computer OM+ Applications	and Suppor	Uploa	WBEM	Provider Su	Aspnet. Sn 🔺
DCOM Config					
AcroPDF Adobe Acrobat D Adobe Acrobat D ArchiverService	MMC Applicati	MobSync	MPriborDB	MSDAINITI	NAP Agent Service
Blocked Drivers GOM+ Event Sys					(
ComEvents.Com GomEvents.Com GomEvents.Com	NAPOPC_XPE DA Server	netman	NetMeeting	Network Provisioni	OpcEnum
🕀 🧑 CustReg Class	-	View			
 ⊕ Oefrag FAT engir ⊕ Oefrag NTFS eng 		Properties			

Step 10: Select the "Security" tab page and click "Edit..." of "Configuration Permissions". To make sure there is "Everyone" in "Group or user names" and allow "Full Control" and "Read"

C Customize	Edit	Change Configuration Permission
Access Permissions		Security Group or user names:
C Customize	Edit	Administrator (0EM-03WQK3Cl4HB\Administrator) Administrators (0EM-03WQK3Cl4HB\Administrators) CREATOR 0WNER Everyone
Configuration Permissions		Add Remo
← Customize	Edit	Permissions for Everyone Allow Deny Full Control Read Special Permissions
OKCar	ncel Ap	



Step 11: Select the	e "Identity" tab page and check	"The launching user"

NAPOPC_ST DA Server	Properties	2 🛛
General Location Secur	rity Endpoints Identity	
Which user account do yo	ou want to use to run this application?	
C The interactive user.		
The launching user.		
C This user.		
User:	Browse	
Password:		
Confirm password:		
C The system account (s	services only).	
	OK Cancel Appl	



4.2.3 Configuring On the Server Site (WinPAC) System Requirement

OS version: WinPAC OS 1.3.04 or later Program: NAPOPC_CE5 DCOMCnfg.exe WinPAC Utility 2.0.2.1 or later

Configuring DCOM

Step 1: Run the \\NAPOPC_CE5\napopc_ce5boot.exe program to register.

Step 2: Run the dcomcnfg.exe program and choose "Default".





Step 3: Select the "Access" button to add an account which is current connection account from client site.

	ОК
	Cancel
	Add
	Delete
dd Permissions	
dd Permissions Principal: Test	ок

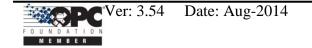
Step 4: Select the "Launch" button to add an account which is current connection account from client site as above.

Step 5: Execute "WinPAC Utility->Network Setting->Users and Password"

WinPAC Utility [2.0.2.1]
File Help Configuration
System Setting Ethernet Setting Network Setting System Information Au
FTP Setting Users and Password
User name Password
Test Add Delete
User name Password Note: The accounts is used to login the servers search as Telnet, FTP, WebServer etc on WinPAC.
Setting

Step 6: Fill out "User name", "Password", and press "Add". The "User name" and "Password" must be the account we set at **Step 3.** After pressing "Add", press "Setting" to finish all settings.

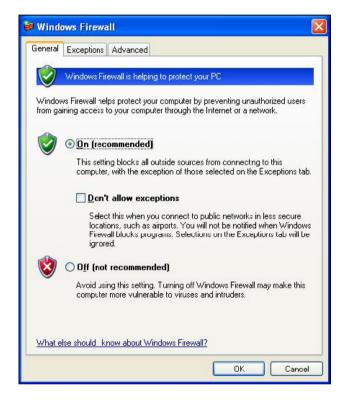
Step 7: Run WinPAC Utility to save and reboot.



4.2.4 Configuring On the Client Site (PC) Configuring the Firewall

Step1: By default the windows firewall is set to "On". This setting is recommended by Microsoft and by OPC to give your machine the highest possible protection. For trouble shooting, you may wish to temporarily turn off the firewall to prove or disprove that the firewall configuration is the source of any communication failure.

Note: It may be appropriate to permanently turn off the firewall if the machine is sufficiently protected behind a corporate firewall. When turned off, the individual firewall settings outlined here need not be performed to allow OPC communication.



Step 2: Select the .Exceptions tab and add all OPC Clients and Servers to the exception list. Also add Microsoft Management Console (used by the DCOM configuration utility in the next section) and the OPC utility OPCEnum.exe found in the Windows\System32 directory.

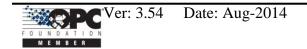
ieneral Exception	ns Advanced			
programs and serv	is blocking incoming vices selected below. might increase your :	Adding exce		
Programs and Ser	vices:			
Name				^
File and Print	er Sharing			
GenAgent.ex	e			
🔽 Gen Registra	rServer.exe			
GraphWorX3	32			
🛛 🗹 LASEngine.e	xe			
🗹 License Mon	itor			
Microsoft Ma	nagement Console			_
🗹 OPC DataSp	у			
🗹 OPC Simulat	no			
🗹 Remote Assi	stance			
	kton			~
Add Program	Add Port	Edi		Delete
Had I jogiani				<u>D</u> 01010
			4	
🕑 Display a <u>n</u> otifi	cation when Window	is Firewall blo	icks a program	1
	of allowing exception			

In the Add a Program dialog, there is a listing of most applications on the machine, but note that not all of them show up on this list. Use the "Browse" button to find other executables installed on the computer.

Note: Only EXE files are added to the exceptions list. For in-process OPC Servers and Clients (DLLs and OCXs) you will need to add the EXE applications that call them to the list instead.

Add a Pro	gram 🛛 🗙
	mmunications with a program by adding it to the Exceptions list,
19223	rogram, or click Browse to search for one that is not listed.
Programs:	
	Logger Configurator
Carou:	
🐹 DataW	(The second
DBOP 🎬	CServerConfigurator
DrDcD 🚏	IM
🚨 FreeCe	
- manufacture and a second	DS3 to GFW16
	DS4 to GFW16
🖾 GenSt	atistics Viewer 💽
Path:	C:\Program Files\ICONICS\GENESIS-32\Bin\
Change sc	ope OK Cancel

Step 3: Add TCP port 135 as it is needed to initiate DCOM communications, and allow for incoming echo requests. In the Exceptions tab of the Windows Firewall, click on Add Port.

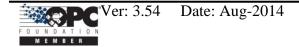


Windo	ws Firewa	u	
General	Exceptions	Advanced	
program: to work I	s and service	ockirg incoming network connec s selected below. Adding exception ht increase your security risk.	
Name		·s.	~
□ File	and Printer !	haring	
	nAgent.exe		
🗹 Ger	nRegistrarSe	ver.exe	
🗹 Gra	phWorX32		=
🗹 LAS	SEngine.exe		
🗹 Lice	ense Monitor		
🗹 Mic	rosoft Manag	emert Console	-
	C DataSpy		
	C Simulator		
	mote Assistar		-
Ber	mote Neskto		
Add P	rogram	Add Port	Delete
🔽 Displ	au a notificat	on when Windows Firewall blocks	a program
	ay a <u>n</u> otinoat		a program
What are	e the risks of	allowing exceptions?	
			OK Cancel

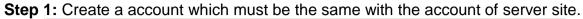
In the Add a Port dialog, fill out the fields as follows: Name: DCOM Port number: 135

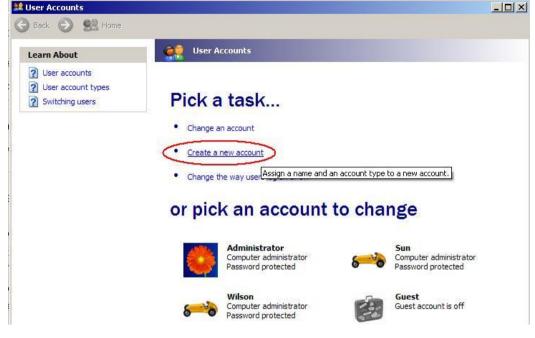
Choose the TCP radio button

Add a Port		<u> </u>
	to open a port through Windows Firewall. To fi ol, consult the documentation for the program (
<u>N</u> ame:	ОСОМ	
Port number:	135	



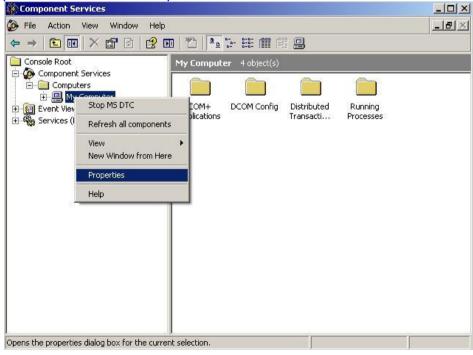
Creating the Account





Configuring DCOM

Step 1: Run the dcomcnfg.exe program to launch component services. Right clieck "My Computer" and choose "Properties".



Step 2: Select the "Default Properties" tab page.

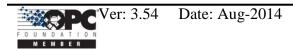
Step 3: Use the following settings:

Field Name	Set to
Enable Distributed COM on this computer	Checked
Default Authentication Level:	Default
Default Impersonation Level:	Identify

My Computer Properties	×
Default Protocols MSDTC COM Security General Options Default Properties	
Enable Distributed COM on this computer	
Enable COM Internet Services on this computer	
Default Distributed COM Communication Properties	
The Authentication Level specifies security at the packet level.	
Default Authentication Level:	
Default	
The impersonation level specifies whether applications can determine who is calling them, and whether the application can do operations using the client's identity.	
Default Impersonation Level:	
Identify 🔽	
Security for reference tracking can be provided if authentication is used and that the default impersonation level is not anonymous. Provide additional security for reference tracking	
OK Cancel Apply]

Step 4: Select the "COM Security" tab page.

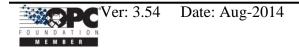
General		Options	Default Properties
Default Proto	ocols	MSDTC	COM Security
.ccess Permis:	sions		
			s to applications. You ma e their own permissions.
	[Edit Limits	Edit Default
You may edi	t who is acts. You	allowed by default to la a may also set limits on	
activate obje	t who is acts. You	allowed by default to la a may also set limits on	
You may edi activate obje	t who is acts. You	allowed by default to k a may also set limits on permissions.	applications that
You may edi activate obje	t who is acts. You	allowed by default to k a may also set limits on permissions.	applications that
You may edi activate obje	t who is acts. You	allowed by default to k a may also set limits on permissions.	applications that



Step 5: Click on the "Edit Limits..." of "Access Permissions" button to set.

Access Permission		? 🔀
Security Limits		
Group or user names:		
ANONYMOUS LOGON		
🕵 Everyone		
Permissions for ANONYMOUS	Add	Remove
LOGON	Allow	Deny
Local Access Remote Access		
Remote Access		
	OK	Cancel

Access Permission		? 🛛
Security Limits		
Group or user names:		
ANONYMOUS LOGON		
🚮 Everyone		
	Add	Remove
Permissions for Everyone	Allow	Deny
Local Access		
Remote Access		
1		
	OK	Cancel



Step 6: Click on the "Edit Default..." of "Access Permissions" button to set.

ault Security		(
roup or user names:		
Everyone SELF SYSTEM		
ermissions for Everyone	Add	Remove Deny
Local Access Remote Access		

Step 7: Click on the "Edit Limits..." of "Launch and Activation Permissions" button to set.

Lau	nch Permission		? 🛛
Se	curity Limits		
G	aroup or user names:		
	🕵 Administrators (ZIBET \A	dministrators)	
1	🕵 Everyone		
E		A11	
		Add	Remove
E	Permissions for Everyone	Allow	Deny
1	Local Launch		
(Remote Launch		
	Local Activation		
7	Remote Activation		
-		OK	Cancel

Step 8: Click on the "Edit Limits..." of "Launch and Activation Permissions" button to set.

unch Permission		?
Default Security		
Group or user names:		
Administrators (ZIBET \Adm	inistrators)	
🕵 Everyone		
101 INTERACTIVE		
SYSTEM		
	Add	Remove
Permissions for Everyone	Allow	Deny
Localtaunch		
Remote Launch		
Local Activation	~	
Remote Activation	~	
	ОК	Cancel
	Ölk	Canoor

Step 9: Right click on the "NAPOPC_ST DA Server" of "DCOM Config" button and select "Properties".



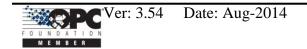
Step 10: Select the "Location" tab page and check "Run application on the following computer". And enter the Server IP here.

POPC_XPE DA Ser	ver Properties	?)>
General Location	Security Endpoints Identity	
application. If you m	igs allow DCOM to locate the cor nake more than one selection, thi ent applications may overide your	en DCOM uses the first
	n on the computer where the data n on this computer.	is located.
Run application	n on the following computer:	
192.168.1.91		Browse

Step 11: Select the "Identity" tab page and check "The launching user"

NAPOPC_ST DA Server Properties	21
General Location Security Endpoints Identity Which user account do you want to use to run this application?	
C The interactive user.	
The launching user. This user.	1
Password:	
Confirm password: C The system account (services only).	
OK Cancel Apply	

Step 12: Restart PC

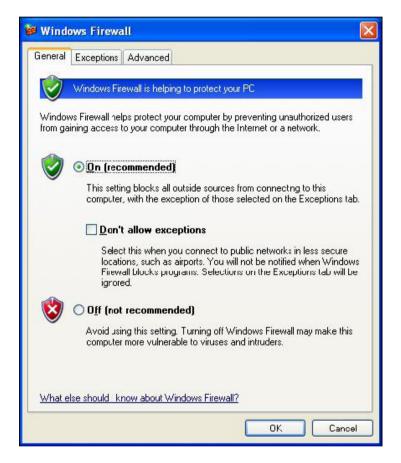


4.2.5 Configuring On the Client Site (XPAC)

Configuring the Firewall

Step1: By default the windows firewall is set to "On". This setting is recommended by Microsoft and by OPC to give your machine the highest possible protection. For trouble shooting, you may wish to temporarily turn off the firewall to prove or disprove that the firewall configuration is the source of any communication failure.

Note: It may be appropriate to permanently turn off the firewall if the machine is sufficiently protected behind a corporate firewall. When turned off, the individual firewall settings outlined here need not be performed to allow OPC communication.



Step 2: Select the .Exceptions tab and add all OPC Clients and Servers to the exception list. Also add Microsoft Management Console (used by the DCOM configuration utility in the next section) and the OPC utility OPCEnum.exe found in the Windows\System32 directory.

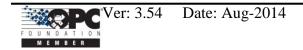
Windo	ows Firewa	U	· · · · · · · · · · · · · · · · · · ·
General	Exceptions	Advanced	
program to work	ns and service	locking incoming network connections, exce s selected below. Adding exceptions allows s ht increase your security risk. ss:	
Name	9	22 -	~
Contractions of the second sec	e and Printer S en Agent. exe en RegistrarSe aphWorX32 .SEngine. exe eanse Monitor crosoft Manag PC DataSpy PC Simulator emote Desktoi	ver.exe lement Console	
🗹 Disp		Add Port <u>E</u> dit on when Windows Firewall blocks a program <u>allowing exceptions?</u>	<u>D</u> elete

In the Add a Program dialog, there is a listing of most applications on the machine, but note that not all of them show up on this list. Use the "Browse" button to find other executables installed on the computer.

Note: Only EXE files are added to the exceptions list. For in-process OPC Servers and Clients (DLLs and OCXs) you will need to add the EXE applications that call them to the list instead.

Programs:	.ogger Configurator	
	Server Configurator	
Alarmy		
Carous	el	
😿 DataW	'orX32	
DBOP	CServerConfigurator	
🚰 DrDCO	M	
🌉 FreeCe	41	
🛅 GenDC	IS3 to GFW16	
🔤 GenDC	IS4 to GFW16	
🖾 GenSta	atistics Viewer	
Path:	C:\Program Files\ICONICS\GENESIS-32\Bin\	Browse

Step 3: Add TCP port 135 as it is needed to initiate DCOM communications, and allow for incoming echo requests. In the Exceptions tab of the Windows Firewall,



click on Add Port.

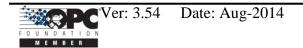
🖗 Windows Firewall				×
General Exceptions Adv	anced			
Windows Firewall is blockin programs and services sele to work better but might inc <u>P</u> rograms and Services:	cted below. Addin	g exception		grams
Name				~
File and Printer Sharin	g			
🗹 GenAgent.exe	-			
GenRegistrarServer.e	xe			
☑ GraphWorX32				=
🗹 LASEngine.exe				
License Monitor				
Microsoft Managemer	t Console			
🗹 OPC DataSpy				
OPC Simulator				
Remote Assistance				-
Add Program	.dd P <u>o</u> rt	Edit	Delete	
	-			
Display a notification will	nen Windows Firev	vall blocks a	nogram	
			, program	
What are the risks of allow	ing exceptions?			
			ок с	ancel

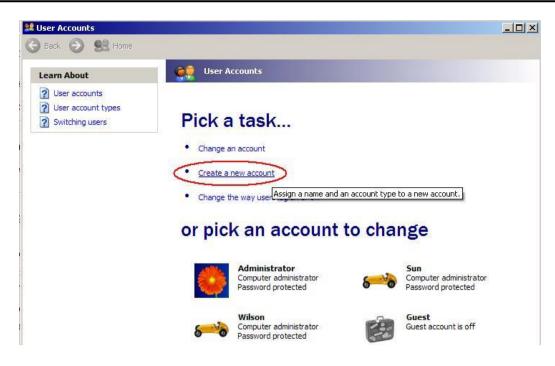
In the Add a Port dialog, fill out the fields as follows: **Name: DCOM Port number: 135** Choose the TCP radio button

Add a Port	
	to open a port through Windows Firewall. To find the port col, consult the documentation for the program or service you
<u>N</u> ame:	ОСОМ
Port number:	13
What are the risks	of cpening a port?
Change scope	OK Cancel

Creating the Account

Step 1: Create a account which must be the same with the account of server site.





Configuring DCOM

Step 1: Run the dcomcnfg.exe program to launch component services. Right clieck "My Computer" and choose "Properties".

🛞 Component Se	rvices					
🚱 File Action	View Window Help					_8×
⇔ → 🗈 🖬	🗙 🗗 🖻 😫 🖬	* <u>`</u>		9		
Console Root		y Comput	er 4 object(s)			
Comput	ers					
±	Stop MS DTC	EOM+	DCOM Config	Distributed	Running	
Event Viev ⊕ 🦓 Services (I	Refresh all components	plications		Transacti	Processes	
1	View)	•				
	New Window from Here					
	Properties					
	Help					
Opens the properties	s dialog box for the current se	election.				

Step 2: Select the "Default Properties" tab page.

Step 3: Use the following settings:

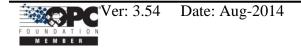
Field Name	Set to
Enable Distributed COM on this computer	Checked
Default Authentication Level:	Default
Default Impersonation Level:	Identify

My Computer Properties 🔋				
Default Protocols MSDTC COM Security General Options Default Properties				
Enable Distributed COM on this computer Enable COM Internet Services on this computer Default Distributed COM Communication Properties				
The Authentication Level specifies security at the packet level. Default Authentication Level: Default				
The impersonation level specifies whether applications can determine who is calling them, and whether the application can do operations using the client's identity.				
Default Impersonation Level: Identify				
Security for reference tracking can be provided if authentication is used and that the default impersonation level is not anonymous. Provide additional security for reference tracking				
OK Cancel Apply				

Step 4: Select the "COM Security" tab page.

General	Options	Default Properties
Default Protocols	MSDTC	COM Security
ccess Permissions —		
		s to applications. You ma e their own permissions.
	Edit Limits	Edit Default
You may edit who is	allowed by default to la u may also set limits on	
activate objects. You	allowed by default to la u may also set limits on	
You may edit who is activate objects. You	allowed by default to k u may also set limits on permissions.	applications that
You may edit who is activate objects. You	allowed by default to k u may also set limits on permissions.	applications that
You may edit who is activate objects. You	allowed by default to k u may also set limits on permissions.	applications that
You may edit who is activate objects. You	allowed by default to k u may also set limits on permissions.	applications that

Step 5: Click on the "Edit Limits..." of "Access Permissions" button to set.



ccess Permission		?
Security Limits		
Group or user names:		
ANONYMOUS LOGON		
🕵 Everyone		
	Add	Remove
Permissions for ANONYMOUS LOGON	Allow	Deny
Local Access		70
Remote Access		
1		
	OK	Cancel

Access Permission		? 🛛
Security Limits		
Group or user names:		
ANONYMOUS LOGON		
🕵 Everyone		
	Add	Remove
Permissions for Everyone	Allow	Deny
Local Access		
Remote Access		
1		
	ОК	Cancel

Step 6: Click on the "Edit Default..." of "Access Permissions" button to set.

Id	Remove
Id	Remove
Allow	Deny

Step 7: Click on the "Edit Limits..." of "Launch and Activation Permissions" button to set.

ecurity Limits Group or user names: @ Administrators (ZIBET \Ar @ Everyone	dministrators)	_
Permissions.fo r Everyone	Add	Remove Deny
Local Launch Remote Launch Local Activation Remote Activation	V V V V	

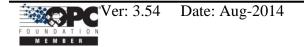
Step 8: Click on the "Edit Limits..." of "Launch and Activation Permissions" button to set.

Launch Permission		? 🔀
Default Security		
Group or user names:		
Administrators (ZIBET\Adm	ninistrators)	
SYSTEM		
	Add	Remove
Permissions for Everyone	Allow	Deny
Localtaunch		
Remote Launch		
Local Activation		
Remote Activation		
-	OK	Cancel

Step 9: Right click on the "NAPOPC_XPE DA Server" of "DCOM Config" button and select "Properties".



Step 10: Select the "Location" tab page and check "Run application on the following computer". And enter the Server IP here.

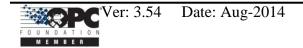


PO	PC_XPE DA S	erver Propertie	5			? >
Gen	neral Location	Security Endp	oints Ider	ntity		
ар	plication. If you	ings allow DCOM t make more than c lient applications m	one selectio	n, then D(COM uses the	
		on on the compute on on this compute		data is lo	cated.	
7	Run applicatio	on on the following	computer:			
	192.168.1.91				Browse	
-						_
						W
		L	Ж	Cancel	A	oply

Step 11: Select the <u>"Identity"</u> tab page and check "The launching user"

	Properties	2 🛛
General Location Secur	ity Endpoints Identity	
Which user account do yo	ou want to use to run this applica	ation?
0.00		
C The interactive user.		
The launching user.		
C This user.		
User:		Browse
Password:		
Confirm password:		
C The system account (s	services only).	
	OK Cancel	Apply

Step 12: Restart XPC





5 Writing Client Program with VB

5.1 **Programming with VB5**

5.1.1 Overview of OPC & VB

Visual Basic language supports COM(Component Object Model). COM implementation from Visual Basic use what is called an "Automation" interface. The OPC Foundation supplies the source code of "Automation Wrapper" DLL which lets VB access OPC Servers and their underlying Groups and items. That's why we have to install the OPC DAC (Data Access Component.) software(see 2 Quick Start). After we install the OPC DAC software, we can use Automation Wrapper connects VB to OPC.

The following figure shows the architecture of object model for the automation wrapper. Because the OPC Server Object contains Group Objects and Items Objects by using Collection, OPC Browse Object can access the item data through the pointer of OPC Server Object.

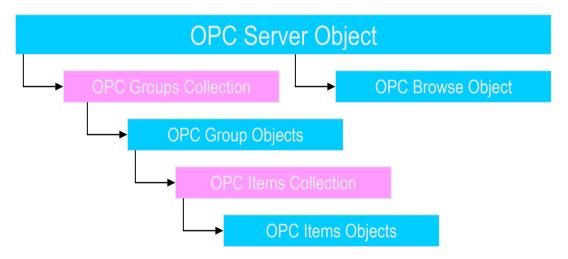


Figure 5-1-1. Object model for the Automation Wrapper

The following figure shows the architecture of OPC Server Object through the Automation Wrapper under COM/DCOM mechanism. The VB program wakes up the remote OPC Server Object through the automation wrapper object by DCOM mechanism.

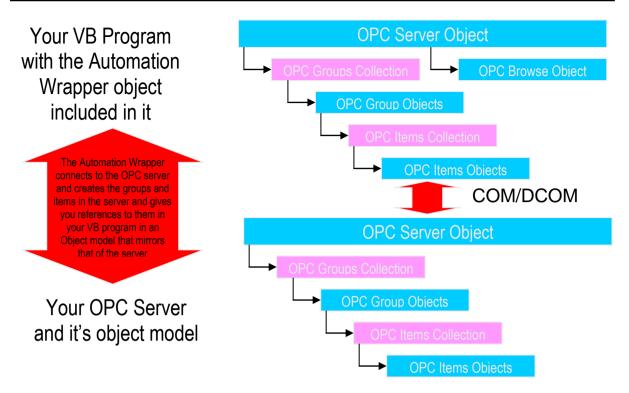


Figure 5-1-2. Architecture of OPC Server Object under COM/DCOM mechanism

5.1.2 Tools You Will Need to Build Your VB Client

If you want to build an OPC client in VB and test it, you will need the following tools.

- Visual Basic 5 or 6 running on Windows 95/98/2000/ME/NT/XP
- An OPC Server At this manual, we use ICP DAS NAPOPC_ST Server as the demo. You can find it at your CD:\\Napdos\Napopcsvr\ or you can download it from the http://www.icpdas.com/download/7000/napopcsvr.htm
- The OPC Automation Wrapper You can find it from <u>http://www.icpdas.com/download/7000/napopcsvr.htm</u>

5.1.3 Building Your VB Client – Step By Step

At this section, we just focus on the key steps of building the VB client. If you want to know more information about OPC Automation 2.0 and the VB demo, please refer to the opcda20_auto.pdf in the C:\ICPDAS\NAPOPC_ST\Manual and the VB demo source code in the C:\ICPDAS\NAPOPC_ST\Client\VB5.

Step 1:

- Install OPCDAC on your PC
- Start a new VB project

- In VB, click on Project -> References on the VB menu bar
- The OPC Automation Wrapper appears on the dialog as "OPC Automation 2.0" – select it as shown here

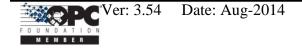
ailable Ref	erences:		ОК
	ic For Applications ic runtime objects and procedures		Cancel
	ic objects and procedures		Browse
	mation 2.0		
	er COM Component 1.0 Type Library	<u>+</u>	
	US Protocol 1.0 Type Library er 1.0 Type Library	Priority	
	.1.0 Type Library	Phoney	Help
	ex 1.0 Type Library	+	-
Acrobat	nan mar an		
Acrobat I		10.00	
	Type Library tup Control Library		
]	liii	>	
OPC Auton	ation 2.0		
Loca	tion: C:\WINDOWS\System32\OP	CDAAuto.dll	
	• • • • • • • • • • • • • • • • • • • •		

Step 2:

First, you have to design your UI(User Interface). You can refer to the UI demo of VB program shown as below. Next, you need to declare some variables at the General Declarations area of VB code window. The most important types of variables are OPCServer, OPCGroup, and OPCBrowser. As the declaration, we can use several functions to read/write item values through Server and Group variables.

NAPOPC Test	Client				
OPC Server					•
Combo1		Connec	a []	Disconnec	t
Tag Selected: Ta	 g	· · · ·	·		
131 24 (23.04)	mple Node mple Node				
Tag Value	Read	Loop Read			

'Declare a new OPC Server object Public Server As OPCServer 'Declare a new OPC Group object



Public Group As OPCGroup 'Declare a new Browser object Public browser As OPCBrowser

Step 3:

You can call GetOPCServers() to scan the OPC Servers at your PC as the following codes.

'Declare a Variant Variable Dim Servers As Variant 'Create a new OPC Server object Set Server = New OPCServer 'Call GetOPCServers to scan the OPC Servers on your PC Servers = Server.GetOPCServers("") 'Show the servers on the Combo box Dim lastIndex As Integer lastIndex = 0 For I = LBound(Servers) To UBound(Servers) cbServerList.AddItem Servers(I) If Servers(I) = lastServer Then lastIndex = I - 1 Next I cbServerList.ListIndex = lastIndex MousePointer = vbDefault

Step 4:

Next, you'll go ahead and add the code rights after you get your connection to the NAPOPC_ST Server. Please refer to the FillItems and Branch subroutine of VB demo program.

'Generate the tree of tags Private Sub FillItems() 'Populate the sub branches in the browser tree Public Sub Branch(Count As Integer, node1 As node)

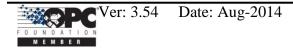
Step 5:

Now, you can add the code for the "Read" button and "Write" button. Please refer to the btnRead_Click and btnWrite_Click subroutine of VB demo program. In these two functions, the *anItem.Read* and the *anItem.Write* are two key methods.

'Read the OPCItem value after the read button press Private Sub btnRead_Click() 'Write the value in the text box after the write button press Private Sub btnWrite_Click()

Step 6:

You can build the project and you will see the UI as below.



DPC Server NAPOPC.Svr		Connect	Disconnect
ag Selected: Ta	ag		
ag Value	Read	Loop Read	

Step 7:

After you click on the "Connect" button, you will see the OPC Server tree list. You can choose one of them and click on the "Read" button. You will see the item value at the "Tag Value" field as below. You can also type the value you want to write in the text box and click on the "Write" button. (Refer to 4.1 Client Demo Program)

🖏 NAPOPC T	est Client		
OPC Server			
NAPOPC.Svr	•	Connect	Disconnect
Tag Selected:	17188EG_TCP.IO.V	1	
	B02 B03 B04 T1 T2 V1 V1 V2 V3		
Tag Value -199.3	Read	Loop Read	
Counter: 0	Write	Stop Loop	Exit

5.2 **Programming with .Net**

5.2.1 Limitations about .Net client programming

1. OPC DA component 2.0 must be installed. (In this case, OPC DA Component 1.0 can't be used)

- Development was done on a Windows XP SP1 system using Microsoft Development Environment 2003 version 7.1.3091 with .Net Framework 1.1 version 1.1.4322 and any new release version of .Net will need to modify these codes.
- 3. Testing was done on following operation system, any others might not work
 - Windows 98 second edition 4.10.2222A
 - Windows 2000 professional 5.00.2195 service pack 4
 - Windows XP professional version 2002 service pack 1

5.2.2 Tools – You Need to Build Your .Net Client

If you want to build an OPC VB .Net or VC# client and test it, you will need following tools.

- Visual Basic .Net 2003 or newer version running on Windows 98/2000/XP
- OPC Automation 2.0

You can install NAPOPC_ST DA Server(From CD:\\Napdos\napopcsvr or download it from <u>http://opc.icpdas.com/download.htm</u>). The NAPOPC_ST DA Server installation will install OPC Automation 2.0 automatically.

An OPC Server

At this manual, we use ICPDAS NAPOPC_ST Server as the demo. You can find it at your CD:\\Napdos\napopcsvr\ or download it from the <u>http://opc.icpdas.com/download.htm</u>

OPC .Net wrapper named "OPCNetWrapper.dll". After you install NAPOPC ST DA Server (From http://opc.icpdas.com/

<u>download.htm</u>), you can find it in Root\\ ICPDAS\ NAPOPC_ST\ Client\ OPC_NetClientDemo\VBOPCClient_Demo

OPCNETWrapper.pdf

After you install NAPOPC_ST DA Server (From <u>http://opc.icpdas.com/</u> <u>download.htm</u>), you can find it in Root\\ICPDAS\NAPOPC_ST\Manual

5.2.3 Building Your VB.Net Client – Step By Step

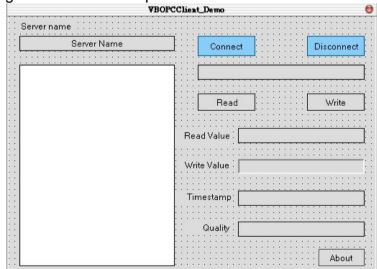
Step 1:

- Install OPC DA Component 2.0 on your PC
- Start a new VB.Net project with "Windows Application Program"
- In VB.Net, click Project -> Add References on the VB.Net menu bar
- Click Browse... to select "OPCNetWrapper.dll" as shown below

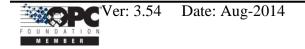
Component Name	Version	Path 4	Browse.
Accessibility.dll	1.0.5000.0	C:(WINDOWS\Microsoft.NETVF	Select
adodb	7.0.3300.0	C1Program Files Microsoft NE	
CRVsPackageLib	9.1.5000.0	C:\Program Files\Common File	
CrystalDecisions.CrystalRepor	9.1.5000.0	C1Program Files\Common File	
CrystalDecisions.ReportSource	9.1.5000.0	C1Program Files/Common File	
CrystalDecisions.Shared	9.1.5000.0	C1Program Files\Common File	
CrystalDecisions.Web	9.1.5000.0	C1Program Files\Common File	
CrystalDecisions.Windows.For	9.1.5000.0	C:\Program Files\Common File	
CrystalEnterpriseLib	9.1.5000.0	C:\Program Files\Common File	
CrystalInfoStoreLib	9.1.5000.0	C:\Program Files\Common File	
CrystalKeyCodeLib	9.1.5000.0	C:\Program Files\Common File	
CrystalPluginMgrLib	9.1.5000.0	C:(Program Files)Common File 💌	
lected Components:			
omponent Name	Туре	Source	Remoy
PCNetWrapper.dll	File	C1Documents and Settings\step	
entermeppenen		erferenzenenen and occurstation but	

Step 2:

First, you must Import following declarations "ICPDAS.OPC", "ICPDAS.OPCDA" and "ICPDAS.OPC.NET". Second, you could design your UI (User Interface). You can refer to the UI of VB.Net program shown as below. Third, you need to declare some variables at the General Declarations area of VB.Net code window. The most important types of variables are ICPDAS_OPCServer, ICPDAS_SynclOGroup, and ServerTreeBrowser. As the declaration, we can use several functions to read/write tag values through Server and Group variables.



'Declare a new ICPDAS_OPCServer object Dim Svr As ICPDAS_OPCServer 'Declare two new ICPDAS_SyncIOGroup objects Dim ReadWriteGroup, Grp As ICPDAS_SyncIOGroup 'Declare a new ServerTreeBrowser object



Dim TagTree As ServerTreeBrowser 'Declare two new RefreshGroup objects Dim AsyncRefrGroup, rGrp As RefreshGroup 'Declare a new TagDef object Dim TagData As TagDef 'Declare a new String variable for OPC Server ProgID Dim ServerName As String

Step 3:

You can set ServerName as "NAPOPC.Svr.1" and pass it to ICPDAS_OPCServer for connecting.

'Set a ProgID to ServerName ServerName = "NAPOPC.Svr.1" 'Create a new OPC Server object Svr = New ICPDAS_OPCServerr 'Connect to NAPOPC DA Server Svr.Connect (ServerName)

Step 4:

Now, you'll go ahead and add the code rights after you get your connection to the NAPOPC_ST Server. Please refer to following TagReadWrite and DataChangeHandler subroutine of VB demo program.

'Handles of data change callbacks Public Sub DataChangeHandler (ByVal sender As Object, ByVal e As DataChangeEventArgs)

Private Sub TagReadWrite (ByVal lgrp As ICPDAS_SyncIOGroup, ByVal lrgrp As RefreshGroup, ByVal iTree As ServerTreeBrowser, ByVal tagId As String)

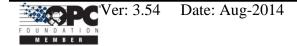
Step 5:

Now, you can add codes for the "Read" button, "Write" button and "TreeView" AfterSelect function. Please refer to the btnRead_Click, btnWrite_Click and tvTags_AfterSelect subroutine of VB.Net demo program. In these three functions, the *Grp.Read*, the *Grp.Write and the* TagTree.TagName are three key methods.

'Read the OPCTag value after the read button press Private Sub btnRead_Click () 'Write the value in the text box after the write button press Private Sub btnWrite_Click () 'The action after selecting the tag Private Sub tvTags_AfterSelect ()

Step 6:

You can build the project and you will see the UI as below.



	VBOPCClient_Demo	6
Server name		
NAPOPC.Svr.1	Connect Disconnec	t
5		
		-
	Read	
		_
	Read Value	
	Write Value	_3
	Timestamp	٦
	Quality	٦
	About	

Step 7:

After you click on the "Connect" button, you will see the OPC Server tree list. You can choose one of them and click on the "Read" button. You will see the tag value at the "Read Value" field as below. You can also type the value you want to write in the "Write Value" and click on the "Write" button. (Refer to 4.2 .Net Client Demo Program)

	VBOPCClient_Demo	
Server name		
NAPOPC.Svr.1	Connect Disconr	nect
Ch14	8411_1.8054_S0.D0s.Ch00	
Ch15 ⊟ ● 8054_S0		
DI		
😑 🕒 Dis	Read Write	8
Ch00		
Ch01		
Ch02 Ch03	Read Value False	
Ch03		
Ch05		
Ch06	Write Value	
Ch07	1	
D0		
⊟● DOs		1
Ch00 Ch01	2004//// 1 1 07.03.30	
Ch02		
Ch03	Quality BAD	
Ch04	Quality BAD	
Ch05		
Ch06		
Ch07	T Abo	μιτ

5.2.4 Building Your VC#.Net Client – Step By Step

Step 1:

- Install OPC DA Component 2.0 on your PC
- Start a new VC#.Net project with "Windows Application Program"
- In VC#.Net, click Project -> Add References on the VC#.Net menu bar
- Click Browse... to select "OPCNetWrapper.dll" as shown below

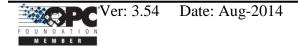
Component Name	Version	Path	
Accessibility.dll	1.0.5000.0	C:(WINDOWS\Microsoft.NET)F	Sglect
dobe	7.0.3300.0	C:(Program Files)Microsoft.NE	-
CRVsPackageLib	9.1.5000.0	C:\Program Files\Common File	
CrystalDecisions.CrystalRepor.	9.1.5000.0	C1Program Files\Common File	
CrystalDecisions.ReportSource	9.1.5000.0	C:\Program Files\Common File	
CrystalDecisions.Shared	9.1.5000.0	C:\Program Files\Common File	
CrystalDecisions.Web	9.1.5000.0	C:\Program Files\Common File	
CrystalDecisions.Windows.For.	. 9.1.5000.0	C:\Program Files\Common File	
CrystalEnterpriseLib	9.1.5000.0	C:\Program Files\Common File	
CrystalInfoStoreLib	9.1.5000.0	C:\Program Files\Common File	
CrystalKeyCodeLib	9.1.5000.0	C:(Program Files)Common File	
CrystalPluginMorl ib	9.1.5000.0	C:(Program Files)Common File *	
ected Componente:			
mponent Name	Туре	Source	Remove
CNetWrapper.dll	File	C3Documents and Settings(step	

Step 2:

First, you must using directive as following declarations:

"ICPDAS.OPC","ICPDAS.OPCDA" and "ICPDAS.OPC.NET". Second, you could design your UI (User Interface). You can refer to the UI of VC#.Net program shown as below. Third, you need to declare some variables at the General Declarations area of VC#.Net code window. The most important types of variables are ICPDAS_OPCServer, ICPDAS_SynclOGroup, and ServerTreeBrowser. As the declaration, we can use several functions to read/write tag values through Server and Group variables.

	VCSOPCClient_Demo 0
Server name	
NAPOPC.Svr.1	Connect Disconnect
	Read Write
	Read Value
	Write Value
	Timestamp
	Quality
	About
'Declare a new ICPDAS_OPCServ	er object
ICPDAS OPCServer	Svr = null;



'Declare two new ICPDAS_SynclOGroup objectsICPDAS_SyncIOGroupReadWriteGroup, Grp;'Declare a new ServerTreeBrowser objectServerTreeBrowserTagTree;'Declare two new RefreshGroup objectsRefreshGroupAsyncRefrGroup, rGrp;'Declare a new TagDef objectTagDefTagData;'Declare a new String variable for OPC ServerstringServerName;

Step 3:

You can set ServerName as "NAPOPC.Svr.1" and pass it to ICPDAS_OPCServer for connecting.

'Set a ProgID to ServerName ServerName = "NAPOPC.Svr.1;" 'Create a new OPC Server object Svr = new ICPDAS_OPCServer (); 'Connect to NAPOPC DA Server Svr.Connect (ServerName);

Step 4:

Now, you'll go ahead and add the code rights after you get your connection to the NAPOPC_ST Server. Please refer to following TagReadWrite and DataChangeHandler subroutine of VC# demo program.

'Handles of data change callbacks public void DataChangeHandler (object sender, DataChangeEventArgs e)

public void TagReadWrite (ICPDAS_SyncIOGroup grp, RefreshGroup rgrp, ServerTreeBrowser iTree, string tagId)

Step 5:

Now, you can add codes for the "Read" button, "Write" button and "TreeView" AfterSelect function. Please refer to the btnRead_Click, btnWrite_Click and tvTags_AfterSelect subroutine of VC#.Net demo program. In these three functions, the *Grp.Read*, the *Grp.Write and the* TagTree.TagName are three key methods.

'Read the OPCTag value after the read button press private void btnRead_Click (object sender, System.EventArgs e) 'Write the value in the text box after the write button press private void btnWrite_Click(object sender, System.EventArgs e) 'The action after selecting the tag private void tvTags_AfterSelect(object sender,

System.Windows.Forms.TreeViewEventArgs e)

Step 6:

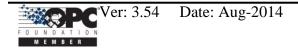
You can build the project and you will see the UI as below.

	VCSOPCClient_Demo	
Server name		
NAPOPC.Svr.1	Connect	Disconnect
	Read	Write
	Read Value	
	Write Value	
	Timestana	î
	Timestamp]
	Quality	1
		About

Step 7:

After you click on the "Connect" button, you will see the OPC Server tree list. You can choose one of them and click on the "Read" button. You will see the tag value at the "Read Value" field as below. You can also type the value you want to write in the "Write Value" field and click on the "Write" button. (Refer to 4.2 .Net Client Demo Program)

V (CSOPCClient_Demo	
Server name NAPOPC.Svr.1	Connect Disconne	ct
B MTCP_8054	MTCP_8054.D0.D01	
DI DI DI2 DI3 DI4 DI5 DI6 DI7 DI8 DO1 DO2 DO2 DO3 DO2 DO3 DO3 DO4 DO4 DO4	Read Value True Write Value Timestamp 2004/7/8 下午 04:50:47	
D06 D07 D08	Quality GOOD	
2	About	t j



6 Changes List

6.1 New features of NAPOPC version 3.0

The new features of NAPOPC_ST version 3.0 are briefly described in this chapter.

6.1.1 New IO Kernel

NAPOPC_ST version 3.0 uses new IO kernel "IOCtrI.DLL" and "DCON_PC.DLL" to elevate IO communication performance. Also, the new IO kernel architecture allows customers only to update "module.ini" for getting new module support.

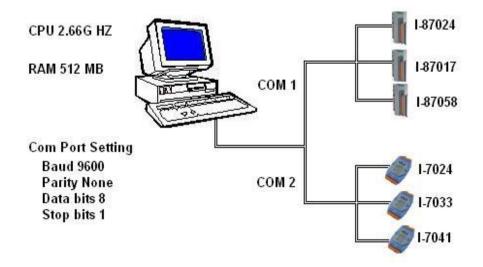
6.1.2 Customized Module/Device Polling Time

NAPOPC version 3.0 allows customers to optimize their communication by setting "Pending Time" in "Device Dialog ". Customers have chance to spread more time resource to other modules which are connected with each other. Please refer to "3.1 Optimize Your Communication" in detail.

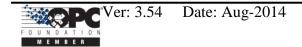
6.1.3 Multi-Thread Communication

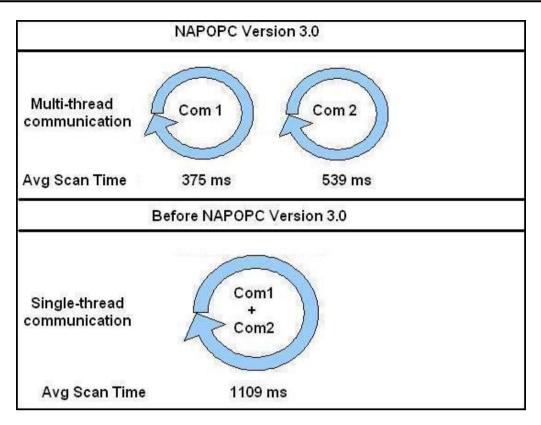
NAPOPC version 3.0 uses multi-thread architecture to organize module and device communication. Before NAPOPC version 3.0, NAPOPC uses singlethread to deal with module and device communication. Therefore, if NAPOPC connects many modules and devices, accessing time will increase observably. By NAPOPC version 3.0, customers have chances to group modules and devices into several parts, and connect via different COM port. One COM port works in one thread. All TCP communications belong to one thread.

Here is an example to show the difference of average scan time between NAPOPC version 3.0 and before NAPOPC version 3.0.



Under the same architecture, the average scan time in NAPOPC version 3.0 is 375 ms and 539 ms separately. Before NAPOPC version 3.0, the average scan time is 1109 ms.





6.1.4 Miscellaneous

- Remove "import/export CSV file" function
- Remove "debug logging" function

6.2 New features of NAPOPC version 3.09

6.2.1 Support <u>Remote Procedure Call with Quicker/UPC</u>

NAPOPC version 3.09 supports RPC(<u>Remote Procedure Call</u>) communication with Quicker and UPC(ICP DAS Universal Protocol Converter). Based on RPC service, NAPOPC can synchronize OLE data with Quicker and UPC automatically. The behavior of changing data between "Quicker/UPC" and NAPOPC is not polling from NAPOPC but sending from "Quicker/UPC". This mechanism can transfer data effectively and shorten response time.

6.2.2 Switch of Single-Thread and Multi-Thread

NAPOPC version 3.09 supports "Communication Mechanism" option at "Options/ Configurate Initial Status". This option lets user define the communication behavior of NAPOPC. Generally, "Multi-Thread" is the best choice for high performace. However, for some particular OPC clients which can not work smoothly under "Multi-Thread" communication, user can choose "Single-Thread" instead.

6.3 New features of NAPOPC_ST version 3.11

6.3.1 Rename NAPOPC to be NAPOPC_ST

For better integration, we rename NAPOPC DA Server to be NAPOPC_ST DA Server. We change some UI display such as icon, logo, and denomination.

6.3.2 Bug Fix

- Fix "Unsupported_Device" bug when searching RU87PN
- Fix modbus tags showing error when tag property length is 4 bytes

6.4 Features of NAPOPC_ST version 3.20

The new features of NAPOPC_ST version 3.20 are briefly described in this section.

6.4.1 Support ET-7000 Search

NAPOPC_ST version 3.20 supports "ET-7000 Search" option at "Add/Search Modules". This option lets NAPOPC_ ST can search not only the modules communicating via COM port but also ET-7000 modules via Ethernet automatically.

6.4.2 Support ZB-2K I/O

NAPOPC_ST version 3.20 supports "ZB-2K" I/O modules at "Select Device" dialog. User can easily choose ZB-2K module ID to add ZB-2K module. And then use "Generate Tags" function to generate ZB-2K properties automatically.

6.4.3 Support FRnet Module

NAPOPC_ST version 3.20 supports "FRnet" I/O modules at "Select Device" dialog. User can easily choose FRnet module ID to add FRnet module. And then use "Generate Tags" function to generate FRnet properties automatically.

Note: If you want to use FRnet modules in NAPOPC_ST, please download FRB driver and install it first. Download link: http://www.icpdas.com/download/frnet/index.htm

6.4.4 Support Account Selection

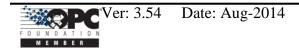
NAPOPC_ST version 3.20 supports "Recent File Source" selection at "Options/Configurate Initial Status" dialog. User can choose "Administrator Account" or "Current User Account" to decide registry location for some DCOM application scenario.

6.4.5 UI Modification

For more protocol support, NAPOPC_ST version 3.20 modifies "Select Device" user interface. NAPOPC_ST version 3.20 separates three groups of "DCON", "FRnet", and "Modbus" from one property sheet to clarify the user interface of device settings. Also, it limits the dialog size to an allowable boundary.

6.5 Features of NAPOPC_ST version 3.30

The new features of NAPOPC_ST version 3.30 are briefly described in this section.



6.5.1 Support FRnet module via RPC communication

NAPOPC_ST version 3.30 supports "FRnet" I/O modules via RPC communication. User can easily create RPC device to synchonize "FRnet" I/O modules plugged in WinPAC(See 1.6.2 Adding A New RPC Controller).

6.5.2 Support host watchdog setting for I-7000 module

NAPOPC_ST version 3.30 supports "WatchDog" settings for I-7000 module when it enables watchdog function. If user enables I-7000 watchdog function by "DCON Utility", NAPOPC_ST can enable and give an appropriate timeout value for I-7000 module to support this function(See 1.6.1 Adding A New I-7K/I-8K/I-87K/ZB-2K I/O Module).

Note: The "Communication Mechanism" must be "Multi-Thread".

6.5.3 Support usage of USB hardkey to enhance functionality

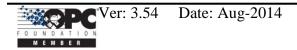
NAPOPC_ST version 3.30 supports usage of USB hardkey to enhance functionality. User can purchase USB hardkey to enhance the functionality of NAPOPC_ST DA Server by "License Manager" (See 1.16 License Manager).

6.6 Features of NAPOPC_ST version 3.54

The new features of NAPOPC_ST version 3.54 are briefly described in this section.

6.6.1 Support CSV file to create a NAPOPC_ST project based on Modbus TCP

NAPOPC_ST version 3.54 supports to import a CSV file to create a NAPOPC_ST project based on the Modbus TCP. The new contents introduce the new function to import a CSV file and the format of the CSV file. (See 1.3 File > Import CSV File > Modbus TCP).



7 Reference

FAQ.txt

The frequently asked questions and answers. http://opc.icpdas.com/fag_st.htm

GetStart.PDF

This manual can be downloaded from below link. <u>http://www.icpdas.com/download/7000/manual.htm</u> It describes the following topics:

- 1. Connecting modules
 - 2. The 7000 Utility user's manual.
 - 3. Introduction to NAP7000P
 - 4. Introduction to NAP7000X
 - 5. Dual Watchdog
 - 6. FAQ for 7000

OPCNetWrapper.PDF

This document describes how to use OPC .NET wrapper for .NET programming.

OPCOvw.PDF

The OPC overview - written by the OPC Foundation.

OPCCommn.PDF

The OPC common interface - specifications by the OPC Foundation.

OPCDA20_Cust.PDF

The OPC DA v2.0 custom interface - specifications by the OPC Foundation.

OPCDA20_Auto.PDF

The OPC DA v2.0 automation interface - specifications by the OPC Foundation.

OPC Foundation Web Site

http://www.opcfoundation.org/