The configuration program provides a built-in OPC UA Client that enables connections to OPC Servers. The NEO OPC Client is built with the OPC Client SDK and can be used to interactively browse and retrieve a Server's Address Space. After the Server's Address Space (or part of the Address Space) being imported to the configuration program, the object instances in the Address Space can be selected as tags.

## **NEO OPC Client Driver**

The NEO OPC Client can be launched by configuring an OPC Link from the *New Link* or *Add Link* dialog as the followings:

Add Link	
Properties	
Link Number:	1
Link Name:	Link 1
Link Type:	OPC Link
Driver:	PanelMaster   OPC UA Client Driver
	Discover Server
OPC Server:	•
The duration of s	showing a communication error message: 5 second(s)
	OK Cancel Help

1) From the *Link Type* combo-box, select *OPC Link*.

2) From the Driver combo-box, select OPC UA Client Driver.

Add Link					×
Properties					
Link Number:	1				
Link Name:	Link 1				
Link Type:	OPC Link				<b>-</b>
Driver:	PanelMaster 🔹	OPC UA Client Driver			•
	Discover Server				
OPC Server:					•
The duration of s	howing a communication error message	5 second(s)			
	nowing a communication error message.	Second(s)			
			ОК	Cancel	Help

3) The built-in OPC Client can discover any registered OPC Servers running on the local machine after the *Discover Server* button is clicked. A list of registered OPC Servers will be displayed after this button is clicked.

Add Link		X
Properties		
Link Number:	1	
Link Name:	Link 1	
Link Type:	OPC Link	•
Driver:	PanelMaster	OPC UA Client Driver
OPC Server:	Discover Server	Discover Servers
The duration of s	howing a communication err	OK Cancel
		OK Cancel Help

To discover any OPC Servers running on other network hosts, type the host's correct URL or computer name of the target machine into the *Host* field, and then press the *Find* button to find all registered OPC Servers running on the specified remote host.

4) After selecting a target OPC Server, press the *Connection Test* button to create a new session to the OPC Server if it is running. If user authentication is required by the OPC Server, a user name and password are necessary. The authentication modes depend on the endpoint of the Server. Only options available for the current endpoint will be displayed. The user name/password may be left blank. If a user name is specified then it must be a valid windows account on the Server machine.

Link Number: 1 Link Name: Link 1 Link Type: OPC Link Driver: PanelMaster  OPC UA Client Driver Discover Server Connection Test OPC Server: http://jack-computer.51211/UA/SampleServer Session Name MySession 1 Authentication Mode Anonymous  User Name Server Password Name Modelast Password		
Image: Connect Server       Session Name     MySession 1       Authentication Mode     Anonymous       User Name     Value       Password     Server		
OK Cancel DisplayNa Description WriteMask UserWrite EventNotif	IVer Value i=85 1 me Object: n 0 Mask 0 0 mask 0 0 mir 0	Use Sec Data Type Nodeld Int32 Uint32 Uint32 Byte

5) After a successful connection test to an OPC Server, the address of that OPC Server will be cached by The configuration program in order for future use.

A	ld Link						x
Γ	Properties						
	Link Number:	1					
	Link Name:	Link 1					
	Link Type:	OPC Link					-
	Driver:	PanelMaster	•	OPC UA Client Driver			-
		Discover Server	Connection Test				
	OPC Server:	http://jack-computer:	51211/UA/Samples	Server			-
		http://jack-computer: opc.tcp://jack-comput	51211/UA/Samples ter:48400/UA/Com	Gerver ServerWrapper			
		opc.tcp://jack-comput	ter:51210/UA/Samp	pleServer			-11
	The duration of a						
	The duration of s	nowing a communicatio	merror message:	Second(s)			
					ОК	Cancel Help	

## **NEO OPC UA Client Panels**

Once the connection to an OPC UA Server has been established, the OPC UA Client populates the following panels as shown in the Figure below:

Connect Server					X
Server					
http://jack-computer:51211/UA/SampleServer				<ul> <li>Use Security</li> </ul>	Connect
<ul> <li>Berver</li> <li>Data</li> <li>Static</li> <li>Dynamic</li> <li>Conditions</li> <li>Boiler #1</li> <li>Boiler #2</li> <li>MemoryBuffers</li> </ul>	Name Nodeld NodeClass BrowseName DisplayName Description WriteMask UserWriteMask UserWriteMask EventNotifier	Value ns=2j=10157 1 2:Data Data 0 0 1	Data Type Nodeld Int32 QualifiedName LocalizedText Null UInt32 UInt32 Byte		
	•		III		•
Connected [http://jack-computer:51211/UA/Sar	npleServer/None	] 01:09:22			

An example of Server's Address Space of http://jack-computer:51211/UA/SampleServer

The browse panel available on the left displays the object instances in the Server's Address Space while the property panel on the right shows the details of a given object instance.

The OPC UA Server's Address Space is a full mesh network which can be viewed by expanding any of the nodes shown in the browse panel. While details of an object instance in the Server's Address Space can be viewed by clicking its corresponding node. See OPC documentation for more detailed description about UA Server's Address Space.

Under the Server menu, there is a *Disconnect* menu option. The current session can be closed at any time by clicking it.

## Load Tags from OPC Server into The configuration program

All or part of an OPC Server's Address Space can be loaded into The configuration program as tags for use as long as the data type (e.g. integer, floating) and value rank (e.g. one dimension or two dimensions) of an object instance are supported by The configuration program. Currently,

The supported data types are as the following:

- Boolean
- Byte
- SByte
- Float
- Int16
- Int32
- ByteString
- String
- UInt16
- UInt32

The supported value rank are as the following:

- Scalar
- One Dimension
- Two Dimensions

The object instances in the OPC Server's Address Space with unsupported data type or value rank are automatically eliminated during loading tags from OPC Server into The configuration program.

Loading tags from OPC Server's Address Space into The configuration program can be accomplished in *Tag Table* dialog. By clicking the *Load Tags from OPC Server* from the pop-up

menu under the Link name as shown below. (Note: the driver of the Link must be an OPC UA Client driver.)

Tag Tabl	Tag Table (AP_1)									
	Interna	I Memory	Link 1 D	lata Type						
	Linta	Add Subgroup		ame	Alias For	Data Type	Address	Scan Rate	Description	
		Insert Group Above								
		Insert Group Below								
		Delete Group								
		Rename Group								
		inclining aroup								
		Preview/Import Tags								
		Export Group								
		Export Group with Its	Subgroups	III					Þ	
Ľ		Import Data Type								
		Export Data Type								
		Load Tags From OPC	Server							

The OPC UA Client populates the following panels in which Server's Address Space can be selected. Here, we select loading all the tags under *Data* node as an example.

Connect Server					×
Server					
http://jack-computer:51211/UA/SampleServer				Use Security Conne	ct
<ul> <li>⊕- Server</li> <li>□ Data</li> <li>□ Load Selected Tags to PM Desinger</li> <li>⊕ Donations</li> <li>⊕ Conditions</li> <li>⊕ Collers</li> <li>⊕ MemoryBuffers</li> </ul>	Name Nodeld NodeClass BrowseName DisplayName Description WrtteMask UserWrtteMask EventNotifier	Value ns=2;i=10157 1 2:Data Data 0 0 1	Data Type Nodeld Int32 QualifiedName LocalizedText Null UInt32 UInt32 Byte		•
Connected [http://iack-computer:51211/UA/SampleServ	er/Nonel 04:53:	53			

After clicking the *Load Selected Tags from OPC server*, all the supported data tags under the *Data* node are loaded to The configuration program as the Figure shown below.

Tag Table (AP_1)							×
					为自自		
🔳 Drag selection then dr 🕴	Link 1	Data Type					
OpcServer		Name	Alias For	Data Type	Address	Scan Rate	Description
💮 🤷 Data							
Internal Memory							
Link 1							
	1						F.

After that, drag the imported tag group (or its sub-group), e.g. the OpcServer folder under the Link1 node.

Tag Table (AP_1)							
		1.		<u>₫××</u>			
🔳 Drag selection then dr 🔀	Link 1	Data Type					
		Name	Alias For	Data Type	Address	Scan Rate	Description
Internal Memory							
Link1							
🗄 🚈 OpcServer							
	•	III					P.

By clicking the corresponding node under the Link1 node (here take Scalar node as an example), the detailed information of the tags are displayed on the right side list.

Tag Table (AP_1)									
🔳 Drag selection then dr 🖾	Scalar								
		Name	Alias F	Data Type	Address	Scan Rate	Description		
	1	BooleanValue		Bit	ns=2;i=10216	Normal	R W		
	2	SByteValue		8-Bit Signed Integer	ns=2;i=10217	Normal	R W		
	3	ByteValue		8-Bit Unsigned Integer	ns=2;i=10218	Normal	RIW		
	4	Int16Value		16-Bit Signed Integer	ns=2;i=10219	Normal	R W		
Data 🔺	5	UInt16Value		16-Bit Unsigned Integer	ns=2;i=10220	Normal	R W		
G Mathed To	6	Int32Value		32-Bit Signed Integer	ns=2;i=10221	Normal	R W		
	7	UInt32Value		32-Bit Unsigned Integer	ns=2;i=10222	Normal	RIW		
E CycleC	8	FloatValue		32-Bit Floating Point	ns=2;i=10225	Normal	RIW		
🕀 🖓 🗛 🖓	9	StringValue		16-Bit Unsigned Integer[69]	ns=2;i=10227	Normal	RIW		
🗄 🤷 UserScalar	10	ByteStringValue		8-Bit Unsigned Integer[5]	ns=2;i=10230	Normal	RIW		
UserArray	11	SimulationActive		Bit	ns=2;i=10160	Normal	RIW		
Dynamic		-							
🗄 🚈 Conditions 📃									
		III					4		

In the Figure above, the *Data Type*, *Address*, and *Description* of a given tag is listed one row in the table. Here, *Address* does not represent the physical address but an abstract address where an object instance stays in the OPC Server's Address Space, while R/W in the Description field means that the property of an object instance is both Read and Write allowed. If it is read only, only R appears in that field.

Then, all the tags can be used as you have been already familiar with in The configuration program.