

OPC UA Server Simulator

With Practical Examples using LabVIEW and MATLAB

Hans-Petter Halvorsen

Contents

- OPC UA A Short Introduction to OPC and OPC UA
- OPC UA Server Simulator
 - Free OPC UA Server (with limited features) from the company "Integration Objects" that supports Data Access and Historical Access of OPC UA
 - We will create different OPC UA Clients in different Programming Languages that communicates with the "OPC UA Server Simulator"
- OPC UA Client Free OPC UA Client from the company "Integration Objects"
- LabVIEW OPC UA Toolkit
 - <u>LabVIEW OPC UA Examples communicating with the OPC UA Server</u> <u>Simulator</u>
- MATLAB OPC Toolbox
 - MATLAB OPC UA Examples communicating with the OPC UA Server Simulator and LabVIEW OPC UA Server

Other OPC Resources

- Blog: <u>https://www.halvorsen.blog</u>
- OPC Resources:

https://www.halvorsen.blog/documents/technology/opc/

• YouTube: https://www.youtube.com/IndustrialITandAutomation





OPC UA

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Classic OPC vs. OPC UA



Classic OPC (DCOM)



OPC UA

The server (or clients) can be an embedded system, LINUX, Windows, etc.

OPC UA Server



OPC UA Client

Classic OPC requires a Microsoft Windows operating system to implement COM/DCOM server functionality. By utilizing SOA and Web Services, OPC UA is a platform-independent system that eliminates the previous dependency on a Windows operating system. By utilizing SOAP/XML over HTTP, OPC UA can deploy on a variety of embedded systems regardless of whether the system is a general purpose operating system, such as Windows, or a deterministic real-time operating system.

http://www.ni.com/white-paper/13843/en/

OPC Specifications



... (Many others)

OPC UA

- UA Unified Architecture
- The Next Generation OPC
- Cross Platform. "Classic" OPC works only for Windows
- Based on Modern Software/Network Architecture (No DCOM problems!)
- It makes it easier to transmit and receive data in a modern data network/Internet

Next Generation OPC

Theory



Next Generation OPC





To open DCOM through firewalls demanded a large hole in the firewall! Impossible to route over Internet!



No hole in firewall (UA XML) or just a simple needle stick (UA Binary) is necessary Easy to route over Internet!



OPC UA Server Simulator

Free OPC UA Simulation Server from Integration Objects

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- This free OPC UA Server tool supports data access and historical access information models of OPC UA.
- Consequently, it provides simulated real-time and historical data.
- Moreover, users can configure their own tags and the data simulation via CSV files.
- OPC UA clients can monitor real-time data and explore history data from this simulator.
- <u>https://opcfoundation.org/products/view/opc-ua-</u> <u>server-simulator</u>



https://opcfoundation.org/products/view/opc-ua-server-simulator



Home / OPC Products / OPC UA / OPC UA Server Simulator

OPC Tunneling	OPC UA Server Simulator Download User Guide
OPC UA	
 OPC UA Server Simulator – Full Edition 	Match Demo Videos
OPC UA Server Toolkit	Simulate real-time and historical data using OPC UA Server Simulator!
OPC UA IoT Broker	Integration Objects' OPC UA Server Simulator is a free to use and distribute OPC Unified Architecture server utility.
OPC UA Server for	indeed, you can use this OPC of simulator to play the role of OPC of servers and test your OPC of client applications.
Databases	This free OPC UA Server tool supports data access and historical access information models of OPC UA. Consequently, it
OPC UA Client Toolkit	provides simulated real-time and historical data. Moreover, users can configure their own tags and the data simulation via CSV files. OPC UA clients can monitor real-time data and explore history data from this simulator.
OPC UA Server Simulator	
OPC UA Proxy	
OPC UA Wrapper	
OPC UA Client	
OPC Data Archiving	
OPC Clients	
OPC Servers	t d2 t t t t t t t t t t t t t t t t t t
OPC Client Toolkits	
OPC Free Tools	
OPC Server Toolkits	

https://integrationobjects.com/sioth-opc/sioth-opc-unified-architecture/opc-ua-server-simulator/

VPC UA Server Simulator		×
File 🔻 Settings 👻 Help 👻		
Server Endpoints URLs opc.tcp://xps15hph:62640/IntegrationObjects/ServerSimulator		•
SessionId Name User Last Contact		
Subscriptions		
SubscriptionId Publishing Interval Item Count Seq No		
Status: Running Current Time: 11:01:11 Sessions: 0 Subscriptions: 0 Items: 0		

The OPC UA Server Simulator uses 2 CSV simulation files:

- "AddressSpace.csv" used to build the address space of the OPC UA Server.
- "ValueSpace.csv" used to simulate the data values of the OPC UA items.
- Those two files are located at the following path: X:\Program Files (x86)\Integration Objects\Integration Objects' OPC UA Server Simulator\OPC UA Server Simulator\DATA

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Tag3	IO_Int64	RW	FALSE				A1		× :	$\times \checkmark f_x$	Tag11					
Tag4	IO_UInt16	RW	FALSE					A	В	С	D	E	F	G	Н	1
Tag5	IO_UInt32	RW	FALSE				1 Ta	ag11		Tag12		Tag13				
Tag6	IO_UInt64	RW	FALSE				2	11	good	56	good	4	7 good			
Tag7	IO_Double	RW	FALSE				3	12	good	32	good	14	1 good			
Tag8	IO_String	RW	FALSE				4	13	good	28	good	83	5 good			
Tag9	IO_Byte	RW	FALSE				5	14	good	14	good	123	5 good			
Tag10	IO_Boolean	RW	FALSE				6	15	good	15	good	24	1 good			
Tag11	IO_Int16	R	TRUE				7	16	good	57	good	69	e good			
Tag12	IO_Int32	R	TRUE				8	17	good	65	good	30	5 good			
Tag13	IO_Int64	R	TRUE				9	18	good	18	good	18	3 good			
Tag14	IO_UInt16	R	TRUE				10	19	good	48	good	84	1 good			
Tag15	IO_UInt32	R	TRUE				11	20	good	36	good	64	1 good			
Tag16	IO_UInt64	R	TRUE				12									
Tag17	IO_Double	R	TRUE				13									
Tag18	IO_String	R	TRUE				14									
Tag19	IO_Byte	R	TRUE					0.9			~					
Tag20	IO Boolean	R	TRUE					- F.	Val	ueSpace	(+)					



OPC UA Client

Free OPC UA Client from Integration Objects

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OPC UA Client

- OPC UA Client is a free client tool that supports the main OPC Unified Architecture information models.
- These models are Data Access, Alarms & Conditions, and Historical Data Access
- <u>https://integrationobjects.com/sioth-opc/sioth-opc-unified-architecture/opc-ua-client/</u>



			Integration Object	s' OPC UA Client				- = x
Home								
New Open	Save Save Connect Lisconnect	Settings UA Settings Help A	bout Define Remove	Certificate Manager				
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Sessions		Display Name	Session Information	15hph:62640/IntegrationObjects/:	us Subs	cription Session	Attribute	Value
	A 11111111 A		Transport Protocol	Message Encoding				
Address Space			Opc.tcp	Binary			E.	
Forward		×) Https	() Xml				
			 Security Mode None Sign Sign _Encrypt 	Security Policy None Basic128RSA15 Basic256 Basic256Sha256				
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× 🖬 🗑 🛛			Certificate (.pfx)					\$
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[Control]	2022-02-08 13:01:03	A session "Session0" with the	Apply	Cancel	ne:Binary]] was suc	cessfully created.		
3 Messages								

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Home												
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End Time (Data References and Attributes Read Write											
🗙 🖫 🍵 🎽	Monitor											\$
Message Type	Timestamp	Message										
[Control]	2022-02-08 13:03:09	Read operati	ion of the variable [ns=2	2;s=Tag7] succeeded.								
[Control]	2022-02-08 13:01:03	A session "Se	ession0" with the Endpo	int [opc.tcp://xps15hph	:62640/Integratio	nObjects/Serv	erSimulator - [No	one:None:Binary	/]] was successfully	created.		
2 Messages	1											



LabVIEW OPC UA Toolkit

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OPC UA Toolkit in LabVIEW



OPC UA Server
◆ Q Search Cutom PC UA Server Palette

OPC

Stop.vi

Ø0₽C

Unregister

Server.vi



Create.vi



Add Trusted Clients.vi



Add Folder.vi



Read.vi



Alarms and Conditions



Close.vi



🖥 OPC

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Add Item.vi

🖥 орс

Write.vi

10

OPCUA

Historical

Access

Clear All Trusted Clients.vi

> ●0PC + ∩/

POPC

Þ

Start.vi

<mark>,20PC</mark> ■ 1

Register

Server.vi

Add Analog Item.vi

	₿ 0PC † -€
Add	Proper

Property.vi



Delete Node.vi

OPC UA Client **QPC UA Client Palette** Q Search



Connect.vi



Add Monitored Data Nodes.vi



Alarms and Conditions



Forward Browse.vi



Get Node Attribute.vi



Historical Access



Create Subscription.vi



Multiple Read.vi



Multiple Write.vi

OPC

OPC

K [,D=0

Delete

Subscriptions.vi



Disconnect.vi



Delete Monitored



LabVIEW Examples

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LabVIEW Example 1

Read Data from the OPC UA Server Simulator

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ltem F	ath											
ns=	2;s=Fa	ctory.Te	mperature									
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	A	В	C	D	E	F	G	Н	
	Tag Name	Data Type	AccessRights	Simulated					
2	Tag1	IO_Int16	RW	FALSE					
3	Tag2	IO_Int32	RW	FALSE					
4	Tag3	IO_Int64	RW	FALSE					
5	Tag4	IO_UInt16	RW	FALSE					
5	Tag5	IO_UInt32	RW	FALSE					
7	Tag6	IO_UInt64	RW	FALSE					
3	Tag7	IO_Double	RW	FALSE					
9	Tag8	IO_String	RW	FALSE					
0	Tag9	IO_Byte	RW	FALSE					
1	Tag10	IO_Boolean	RW	FALSE					
2	Tag11	IO_Int16	R	TRUE					
3	Tag12	IO_Int32	R	TRUE					
4	Tag13	IO_Int64	R	TRUE					
5	Tag14	IO_UInt16	R	TRUE					
6	Tag15	IO UInt32	R	TRUE					
7	Taglo	IO UInt64	8	TRUE					
8	Tag17	IO_Double	R	TRUE					
9	lagis	IO_String	к	TRUE					
0	Tag19	IO_Byte	R	TRUE					
1	Tag20	IO_Boolean	R	TRUE					
2		-							

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VPC UA Server Simulator -	_ File Edit View Project Operate Tools Window Help	9
File 🔹 Settings 👻 Help 👻		8
Server Endpoints URLs opc.tcp://xps15hph:62640/IntegrationObjects/ServerSimulator Sessions	Server endpoint URL opc.tcp://xps15hph:62640/IntegrationObjects/ServerSimulator Item Path Ins=2;s=Tag17 TagValue	
Subscriptions SubscriptionId Publishing Interval Item Count Seq No Status: Running Current Time: 12:22:23 Sessions: 1 Subscriptions: 0 Items: 0	-4.17524E+12 OPC Element node ID ns=2;s=Tag17 value -4.17524E+12 timestamp	
	12:22:38.032 2022-02-08 status Good	Stop



LabVIEW Example 2

Write Data to the OPC UA Server Simulator

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Example 2 – Write

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Server endpoint URL									
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Item Path									
Item Path	mperature								
Item Path	mperature								
Item Path ns=2;s=Factory.Te Temperature Value [1	mperature C]								
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Example 2 – Write



Example 2 – Write

									9
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1	Tag Name	Data Type	AccessRights	Simulated					
2	Tag1	IO_Int16	RW	FALSE					
3	Tag2	IO_Int32	RW	FALSE					
4	Tag3	IO_Int64	RW	FALSE					
5	Tag4	IO_UInt16	RW	FALSE					
6	Tag5	IO_UInt32	RW	FALSE					
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8	Tag7	IO_Double	RW	FALSE					
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10	Tag9	IO_Byte	RW	FALSE					
11	Tag10	IO_Boolean	RW	FALSE					
12	Tag11	IO_Int16	R	TRUE					
13	Tag12	IO_Int32	R	TRUE					
14	Tag13	IO_Int64	R	TRUE					
15	Tag14	IO_UInt16	R	TRUE					
16	Tag15	IO_UInt32	R	TRUE					
17	Tag16	IO_UInt64	R	TRUE					
18	Tag17	IO_Double	R	TRUE					
19	Tag18	IO_String	R	TRUE					
20	Tag19	IO_Byte	R	TRUE					
21	Tag20	IO_Boolean	R	TRUE					
22									

OPC UA Client for OPC UA Server Simulator-Write.vi	
ile Edit View Project Operate Tools Window Help	
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	Dec UA Client for OPC UA Server Simulator-Read.vi — L X
Server endpoint URL	File Edit View Project Operate Tools Window Help
opc.tcp://xps15hph:62640/IntegrationObjects/ServerSimulator	
	Server endpoint URL
Item Path	opc.tcp://xps15hph:62640/IntegrationObjects/ServerSimulator
ns=2;s=Tag7	Hanne Databa
Temperature Value [C]	
	TagValue
	23
OPC UA Server Simulator	OPC Element
Server Endpoints URLs ppc.tcp://xps15hph.62640/integrationObjects/ServerSimulator	node ID
Sessions	ns=2;s=Tag7
urn:XPS15HPH:Nati_Anonymous ns=3;i=1837697819 12:24:52	value
urn:XPS16HPH:NatiAnonymous ns=3;t=183/697/63 12:24:52	23
	timestamp
Subscriptions	12:25:45.271 2022-02-08
SubscriptionId Publishing Interval Item Count Seq No	status
	Good
Status: Bunning Current Time: 12:24:52 Sessions: 2 Subscriptions: 0 Items: 0	



LabVIEW Example 3

Create and use a LabVIEW OPC UA Server

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Ex3 – LabVIEW OPC UA Server

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	Server e	ndpoint URI	_							
	opc.to	:p://XPS15H	PH:49580							
	<u> </u>						 			
	Item Pat	th								
	ns=2;	s=Factory.Te	emperature	:						
	<u> </u>									
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	Certifi	cate Exist?						St	ор	
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Ex3 – LabVIEW OPC UA Server



OPC UA Client-Write.vi	- 🗆 X	DPC UA Client-Read.vi	- 🗆 ×
File Edit View Project Operate Tools Window Help		File Edit View Project Operate Tools Window Hel	p
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		Server endpoint URL	
Server endpoint URL		opc.tcp://XPS15HPH:49580	
opc.tcp://XPS15HPH:49580			
		Item Path)
Item Path		ns=2;s=Factory.Temperature	
ns=2;s=Factory.Temperature		Testiches	
		TagValue	
Temperature Value [C]		/ 22	
22			
		OPC Element	
LabVIEW OPC UA Server.vi		node ID	
File Edit View Project Operate Tools Window Help		ns=2;s=Factory.Temperature	
	2		
Server endpoint URL		timestamp	
opc.tcp://XPS15HPH:49580		2022-02-08	
		status	
Item Path]	Good	Stop
ns=2;s=Factory.Temperature			
Certificate Exist?	Stop		
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		•	



LabVIEW Example 4

Use the free OPC UA Client from Integration Objects to Read/Write Data from the LabVIEW OPC UA Server

Hans-Petter Halvorsen

Ex4 – LabVIEW OPC UA Server

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		Integration Objects' OPC UA Client		X
Server endpoint URL	Home			
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Opc.tcp://XPS15HPH:49580	New Open Save Save Connect Disconnect Settings	UA Settings Help About Define Remove Certificate Manager		
	as File Session Config	Connection Settings	<u>]</u>	
Item Path	Sessions	- Service Information		Velue
ns=2:s=Factory.Temperature	Sessions	Session Name Session0	Source Status Subscription Session Attribute	value
	-			
		Server Information		
		Endpoint Url opc.tcp://XPS15HPH:49580		
Certificate Exist?		Transport Protocol Message Encoding		
V	Address Space	Opc.tcp Opc.tcp		
c l	-	Saurite Marte		
		Security Policy None		
		Basic128RSA15		
		Basic256		
		Basic256Sha256		
		User Authentication Mode		
		Anonymous Otertificate		
	× 4 0	Certificate (.pfx)		<u></u>
	Message Type Timestamp Mes	Password	-Consider (NeuroNeuroPierra)	
	[Control] 2022-02-08 13:05:06 Disc [Control] 2022-02-08 13:03:09 Read		ersimulator - [ivone:ivone:Binary]]	
	[Control] 2022-02-08 13:01:03 A set	Apply	erSimulator - [None:None:Binary]] was successfully created.	
	3 Messages	1		

Ex4 – LabVIEW OPC UA Server

LabVIEW OPC UA Server.vi			.											
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	New Open Sa	ave Save Connect Disconnect					Continente Marie	ugoi						
Server endpoint URL	File	Session	Configurat	ion	Help	Default Configuration	Certificate							
	Sessions			Data View H	istory View	Event View						-	8	
opc.tcp://XPS15HPH:49580	- Sessions			Display	Node Id	Value	Data Type	Server	Source	Status	Subscription	Session	Attribute	Value
	Sessionu			Titalite				ninestamp	Timestamp	COUC			Nodeld	ns=2;s=Factory.T
Item Path													ResuseName	Variable
													DisplayName	Temperature
ns=2;s=Factory.Temperature						Read Variable Value			- x				Description	TC-01 Thermoco
C													WriteMask	0
					5	Server Timestamp	022-02-08 12:23:0	8					UserWriteMask	0
	Address Space						022 02 00 12,15,2	7					Value	22
Certificate Exist?	Forward		•			Source Timestamp	022-02-00 12:13:2	1					DataType	Double
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	Session0 Root			4									AccessLevel	Readable Writea
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c	🕀 😭 Server					_							Winimumsampii	Continuous
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	Message Type	Timestamp	Message											
	[Control]	2022-02-08 13:23:08	Read one	ration of the vari	able (ns=2	s=Factory.Temperatur	el succeeded.							
	[Control]	2022-02-08 13:22:38	A session	"Session0" with t	he Endpoir	nt [opc.tcp://xps15hol	:49580/ - [None:N	None:Binary11 w	as successfully c	reated.				
	[Control]	2022-02-08 13:11:27	Disconne	ecting from session	"Session0	[opc.tcp://xps15hpt	:49580/- [None:N	Vone:Binary11						
	7 Messages		orsconne											

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F	ile	Edit	View	Project	Operate	Tools	Window	v H	lelp						Γ	0.08		Fil
		uij)	图 (II											2	1 C		
<	Sessic	Ser Iter sessions rd sessions - Ø View Sessions - Ø View - Ø View		point URL //XPS15H Factory.Te Save as Connect S	PH:49580	E	Data View His Data View His	elp Node Id	Integr Define Default C Val	ation Object Remove onfiguration w	ts' OPC UA C Certificate I Certificate I 23.0000	lient Manager cate OK	alue 200 Cance		State		Subscription	
	*	ki ©	1								*	7						-
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	[Con	trol]	20	22-02-08 13:24	20	Write ope	ration of the varial	ble (ns=2	2:s=Factory.1	[emperature	l succeeded.							
	[Con	ntrol]	2022-02-08 13/2358 Write operation of the variable [ns=2]:s=Factory.Temperature] succeeded.															

D	OPC U	A Clien	t-Read.vi					\neg		×
File	Edit	View	Project	Operate	Tools	Window	Help			1
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Server endpoint URL

opc.tcp://XPS15HPH:49580

Item Path

ns=2;s=Factory.Temperature

TagValue

23

OPC Element

node ID	
ns=2;s=Factory.Temperature	
23	
timestamp	
13:24:20.313 2022-02-08	
status	
Good	

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MATLAB OPC Toolbox

Hans-Petter Halvorsen

MATLAB OPC Toolbox

- MATLAB OPC Toolbox lets you connect to OPC Servers using the MATLAB Environment and Programming Language
- MATLAB OPC Toolbox supports OPC DA, OPC HDA and OPC UA
- <u>https://mathworks.com/products/opc.html</u>

MATLAB OPC UA

 <u>https://se.mathworks.com/help/opc/</u> <u>ug/access-data-from-opc-ua-</u>

servers.html

MATLAB OPC UA - Functions

- 1. Locate Your OPC UA Server
 serverList = opcuaserverinfo('localhost')
- 2. Create an OPC UA Client uaClient = opcua('localhost', port)
- 3. Connect to the Server connect (uaClient)
- 4. Browse OPC UA Server Namespace
 serverNodes = browseNamespace(uaClient)
- 5. Read Current Values from the OPC UA Server
 [val,ts,qual] = readValue(uaClient,serverNodes)
- 6. Disconnect disconnect(uaClient)



MATLAB Examples

Hans-Petter Halvorsen



MATLAB Example 1

OPC UA Server Simulator – Read Data

Hans-Petter Halvorsen

VPC UA Server Simulator	- 0 X
File 🔻 Settings 🔻 Help 🔻	
Server Endpoints URLs opc.tcp://xps15hph:62640/IntegrationOb	bjects/ServerSimulator
Sessions	
SessionId Name User	Last Contact
	Interpretation − □ ×
	opc.tcp Connection
Subscriptions	TCP Port* 62640
SubscriptionId Publishing Interval Item Cour	Int Server Name* IntegrationObjects/ServerSimulator
	https Connection
	HTTPS Port* 62641
Status: Running Current Time: 14:37:16 Sessions: 0	0 Server Name* IntegrationObjects/ServerSimulator
	OPC UA Server Settings
	Update Rate (ms)* 1000
	* Restart the application for changes to take effect
	OK Cancel

clear, clc



- uaClient = opcua('localhost', 62640)
- connect(uaClient)
- serverNodes = browseNamespace(uaClient)
- [val,ts,qual] = readValue(uaClient,serverNodes)
- disconnect(uaClient);

Browse Name Space				×
amespace:		Selected Items:		
Integration Objects UA Server Simulator Server Historical Data Methods Call Time Data Tag1 Tag2 Tag3 Tag4 Tag5 Tag6 Tag7 Tag8 Tag8	^	2:Real Time Data.Tag Below >> <<	7	
Tao11	~			~

Command Window value = 1.3201e-37 timestamp = datetime 08-Feb-2022 14:40:12 quality = OPC UA Quality ID: Good fx >>

Alternative Code

clear, clc

Read Data

```
uaClient = opcua('localhost', 62640)
```

```
connect(uaClient)
topNodes = uaClient.Namespace
serverChildren = topNodes(4).Children
findNode = findNodeByName(topNodes, 'Tag7', '-once')
```

opcNode = opcuanode(2, 'Tag7', uaClient)
[value, timestamp, quality] = readValue(uaClient, opcNode)

disconnect (uaClient);

Here you don't need to select the Tag from the "Browse Name Space" window every time



MATLAB Example 2

OPC UA Server Simulator – Write Data

Hans-Petter Halvorsen

MATLAB OPC UA - Functions

- 1. Locate Your OPC UA Server
 serverList = opcuaserverinfo('localhost')
- 2. Create an OPC UA Client uaClient = opcua('localhost', port)
- 3. Connect to the Server connect (uaClient)
- 4. Browse OPC UA Server Namespace
 serverNodes = browseNamespace(uaClient)
- 5. Write Current Values to the OPC UA Server newValue = 22.5 writeValue(uaClient, serverNodes, newValue);
- 6. Disconnect disconnect(uaClient)

```
clear, clc
```

```
uaClient = opcua('localhost', 62640)
```

```
connect(uaClient)
```

```
serverNodes = browseNamespace(uaClient)
```

```
newValue = 21.7;
writeValue(uaClient, serverNodes, newValue);
```

[value,timestamp,quality] = readValue(uaClient,serverNodes)

```
disconnect(uaClient);
```

Write Data



We can use, e.g., LabVIEW to verify that that data has been written to the Server



MATLAB Example 3

Write/Read Data from LabVIEW OPC UA Server

Hans-Petter Halvorsen

LabVIEW OPC UA Server

LabVIEW OPC UA Server.vi -		×
File Edit View Project Operate Tools Window Help		1008
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		^
Server endpoint URL		
opc.tcp://XPS15HPH:49580		
Item Path		
ns=2;s= Factory.Temperature		
	a	
Certificate Exist?	Stop	
		×
5		×

Read Data from LabVIEW OPC UA Server

clear, clc

```
uaClient = opcua('localhost', 49580)
```

```
connect(uaClient)
```

serverNodes = browseNamespace(uaClient)

[value,timestamp,quality] = readValue(uaClient,serverNodes)

```
disconnect(uaClient);
```

LabVIEW OPC UA Server

					Command Window
Browse Name Space	Calasta	-		×	value =
OPC UA Server	2:Factor	ry.Temperature		^	23
Temperature	>> Below >>				timestamp = <u>datetime</u>
	<<			3	08-Feb-2022 15:00:58
				•	quality =
		ОК	Cancel		OPC UA Quality ID: Good
					Jx >>

LabVIEW OPC UA Server

Stop

		DPC UA Client-Read.vi -	X
		File Edit View Project Operate Tools Window Help	~ /48
		🗰 🐵 🦲 🗉	? 2
LabVIEW OPC UA Server.vi	- 🗆 X	Server endpoint URL	
File Edit View Project Operate Tools Window Help		opc.tcp://XPS15HPH:49580	
	<u> 8</u>	Item Path	
Server endpoint URL		ns=2;s=Factory.Temperature	
opc.tcp://XPS15HPH:49580		TagValue	
Item Path		23	
ns=2;s=Factory.Temperature		OPC Element	
		node ID	
Certificate Exist?	Stop	ns=2;s=Factory.Temperature	
•		value	
		23	
<	>	timestamp	
		14:59:46.908	
		status	

Good

Write Data to LabVIEW OPC UA Server

```
clear, clc
```

```
uaClient = opcua('localhost', 49580)
```

```
connect(uaClient)
```

```
serverNodes = browseNamespace(uaClient)
```

```
newValue = 21.7;
writeValue(uaClient, serverNodes, newValue);
```

[value,timestamp,quality] = readValue(uaClient,serverNodes)

```
disconnect (uaClient);
```

LabVIEW OPC UA Server

		D OPC UA Client-Read.vi — D X
▶ LabVIEW OPC UA Server.vi — □	×	File Edit View Project Operate Tools Window Help
File Edit View Project Operate Tools Window Help		······································
💮 🛞 🔘 II	🤋 🚔	Server endpoint URL
	^	opc.tcp://XPS15HPH:49580
Server endpoint URL		Item Path
opc.tcp://XPS15HPH:49580		ns=2;s=Factory.Temperature
Item Path Ins=2;s=Factory.Temperature		TagValue
Certificate Exist?	ļ	OPC Element node ID ns=2;s=Factory.Temperature value
٢		21.7 timestamp 15:53:15.260 2022-02-08 status Good

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