MX-AOPC UA Server User's Manual

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www.moxa.com/product



MX-AOPC UA Server User's Manual

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1 Introduction

The following topics are covered in this chapter:

- Overview
- **G** System Requirements
- Specifications

Overview

Moxa has pioneered the concept of "active type" OPC software in the automation industry. The patented MX-AOPC UA Server offers both polling (Modbus protocol) and non-polling (Moxa AOPC protocol) architectures alongside the standard OPC UA protocol, giving users the alternative of pull or push-based communication from Moxa's devices. OPC UA (Unified Architecture), which features more secure and reliable data communication between OPC servers and clients, is the next generation OPC standard (IEC 62541). By using Moxa's MX-AOPC UA Server, users can enjoy more secure and reliable data exchange and control.

The MX-AOPC UA Server includes:

- Server Runtime Service: Starts as a service by default after installation.
- Configuration Console: An offline configuration tool for configuring server settings.
- Viewer: An OPC client that allows developers, testers, and integrators to easily view tag values and test MX-AOPC UA Server and connections.

System Requirements

Hardware Requirements

CPU: Intel Pentium 4 or above RAM: 512 MB (1024 MB recommended) Communication Interface: Ethernet or serial

Software Requirements

Operating System: Microsoft Windows XP/Vista/7/8, Microsoft Windows Server 2003/2008/2012 **Editor (optional):** Microsoft Office 2003 (Access or Excel) or later

Specifications

OPC Server Specifications

OPC Unified Architecture: 1.01 OPC Data Access: 1.0a, 2.0, 2.05a, 3.0 Device Protocols: Moxa AOPC, Modbus/TCP Client, Modbus/RTU Client

Products that Support AOPC Protocol

ioLogik: ioLogik 2500 series
Note: Please check Moxa's website for the most up-to-date list of supported products.
Fully Supported OPC UA Server Profiles
Standard UA Server Profile
Core Server Facet

User Token - User Name Password Server Facet
SecurityPolicy - None

Data Access Server Facet
UA-TCP UA-SC UA Binary
User Token - X509 Certificate Server Facet
SecurityPolicy - Basic128Rsa15
SecurityPolicy - None

2

Getting Started

The following topics are covered in this chapter:

- □ Installing MX-AOPC UA Server
- Configuring Active Tags
- Opening the Configuration Console
- Configuring Server Settings
- Configuring Devices and Tags
 - > Adding a Modbus Device
 - Creating Modbus Tags
- Updating Configurations to the Server
- Using the Viewer to Check Tag Values
- Configuring OPC UA Settings

Installing MX-AOPC UA Server

MX-AOPC UA Server can be downloaded from the Moxa website at <u>www.moxa.com</u>.

After downloading the file, unzip it and run setup.exe. The installation program will guide you through the MX-AOPC UA Server installation process.

Configuring Active Tags

MX-AOPC UA Server will automatically receive active tags from Moxa's remote devices once the tags are created. Refer to the device's user's manual to learn how to use the device's configuration utility to create active tags.

Opening the Configuration Console

Open MX-AOPC UA Server's configuration console from the Windows Start menu: **Start** \rightarrow **All Programs** \rightarrow **MOXA** \rightarrow **IO Server** \rightarrow **MX-AOPC UA Suite** \rightarrow **MX-AOPC UA Server**.

The configuration console is an offline configuration tool for configuring Server Runtime settings. When the configuration console is launched, it will automatically get the latest configurations from the Server Runtime. If any active tag is received, the device will be listed in the **Active Device List**. To manually get the latest configurations from the Server Runtime, click the **Get Configuration from Server** icon on the MX-AOPC UA Server menu bar. To manually update the settings to the Server Runtime, click the **Update Configuration to Server** icon on the menu bar.

MX-AOPC U	A Server ew <u>T</u> ools <u>R</u> untime <u>I</u>	Help			
		IV -	Ê 😭 🗿	1	
🖃 🌗 Active De		Tag Name	Data Type	Access Rights	Description
	2-01 (00:90:e8:16:e7:15) Device Group List	🥸 E2242-01.DI-00	Boolean	Read-only	DI
Modbus D	evice Group List	🥸 E2242-01.DI-01	Boolean	Read-only	DI
		🥸 E2242-01.DI-02	Boolean	Read-only	DI
		🤏 E2242-01.DI-03	Boolean	Read-only	DI
		🧐 E2242-01.DI-04	Boolean	Read-only	DI
		🁒 E2242-01.DI-05	Boolean	Read-only	Door Status
		🥸 E2242-01.DI-06	Boolean	Read-only	DI
		🧐 E2242-01.DI-07	Boolean	Read-only	DI
		🧐 E2242-01.DI-08	Boolean	Read-only	DI
		🧐 E2242-01.DI-09	Boolean	Read-only	DI
		🧐 E2242-01.DI-10	Boolean	Read-only	DI
		🥸 E2242-01.DI-11	Boolean	Read-only	DI
		Sector E2242-01.SysConnect-00	Boolean	Read-only	System Connection
Date	Time Eve				
2014/12/29	11:56:04 Suc	cessfully got configuration from serve	r.		
•	m				Þ

NOTE The first time you use MX-AOPC UA Server, we recommend turning off the Windows Firewall and then checking to see if MX-AOPC UA Server is able to receive active tags. If it can, turn the Windows Firewall back on and check it again. If MX-AOPC UA Server does not receive any active tags after you turn on the Windows Firewall, add aopcservice.exe in the Firewall Inbound Rules, and set it to Allow for Private, Public, and Domain network profiles.

NOTE Be sure to update the settings to the Server Runtime after changing the configuration. Otherwise, the Server Runtime will not reflect the configuration changes made using the configuration console.

Configuring Server Settings

Before configuring devices and tags, configure the server settings described below under the **Tools** menu.

<u>File Edit View</u>	ools <u>R</u> untime <u>H</u> elp		
	Serial Port Settings		X
Active Device	AOPC Settings DCOM Configuration OPC UA Settings Viewer System Log Change Password	+	
	Options		

Change Password

We strongly recommend changing the password the first time you use the Configuration Console. The default password is "moxa", which is needed for verification when updating configurations to the Server Runtime or exporting the system log to a text file.

NOTE When connecting an OPC UA client to MX-AOPC UA Server, use account name "admin" (the account name cannot be changed) and whatever the password is. The password is the same as the system password, which can be updated using **Tools** → **Change Password**.

• Serial Port Settings

Configure the PC's **Serial Port Settings** if a serial device is connected to MX-AOPC UA Server.

Data Bits:	8		•	Stop Bits:	1	•	Parity	: None	•	
aud Rate:	1152	00		w Control:	None					
001440	1225	115000	NI			-	2	Mana and Anna and An		
COM9		115200	None	8		1		None		
COM8		115200	None	8		1		None		
COM7		115200	None	8		1		None		
COM6		115200	None	8		1		None		
COM5		115200	None	8		1		None		
COM3 COM4		115200	None	8		1		None		
COM2 COM3		115200 115200	None	8		1		None		
COM1		115200	None	8		1		None		
Port		Baudrate	Parity	Da	ata Bits	Stop Bits		Flow Control		

• AOPC Settings

Configure **AOPC Settings** if a Moxa device updates Active Tags to MX-AOPC UA Server.

AOPC Settings							
Default Network Interface:	Intel(R) 825	Intel(R) 82577LM Gigabit Network Connection					
Active Tag Listen Port:	9900	Enabled					
Command Timeout:	30	sec(s)					
Heartbeat Tolerance:	30	sec(s)					
		OK Cancel					

Configuring Devices and Tags

Adding a Modbus Device

 Click the Modbus Device Group List to select it and then click the New Device Group icon and type in the name of the device group.

MX-AOPC	UA Server			
<u>File</u> <u>E</u> dit <u>\</u>	<u>/</u> iew <u>T</u> ools <u>R</u> unt	ime <u>H</u> elp	0	
	Ē 🗊 🤅		🔊 %	XD
- (Modbus	Device List 242-04 (00:90:e8: 16:e 5 Device Group List Device Group Prope	1	Group No	
	Device Group Name:			cel
		-		

2. Click the **New Device** icon and then configure the device properties.

T 🖻			0	110	Ş	8	6		Ê			1	L
Active Device List 2242-01 (00-90:e Modbus Device Group 1 DeviceGroup 1 Device Property	list	7:15)		Det	vice N	ame			Enable	d		(Communication Pori
Communicatio	otocol:	Inte	(R) 8:			bit Netw	•		able Da	ta Collec	tion		
Unit ID:						•		Reconnect Delay:	3000		ms		
IP Address:	0	•	0	. 0	•	0		Re	connect	Cydes:	3		
Port:	502								Cycle	e Delay:	3		sec(s)
									Polling T	imeout:	3000		ms
									Polling	Retries:	3		

3. Click the device group you just created to display a list of the devices in this group.

MX-AOPC UA Server					×
<u>File Edit View Tools Runtime Help</u>					
🛅 🗊 📅 🗊 🌒 🔊	🔊 💸 🗡 🖻	Ê 🔒 谢 🦣			
	Device Name	Enabled	Communication Port	Protocol	Un
E2242-01 (00:90:e8:16:e7:15)	Device 1	Yes	Intel(R) 82577LM Gigabit	Modbus/TCP protocol	1
DeviceGroup1					

Creating Modbus Tags

1. Click the device name to select it and then click the **New Tag Group** icon and type in the name of the tag group.

MX-AOPC UA Server	second manufacture
<u>File Edit View Tools Runtime H</u> elp	
1 🖬 💼 💼 🗊 💵 🏧	🔊 <table-of-contents> 🗡 🖻</table-of-contents>
Active Device List	Tag Group
E2242-01 (00:90:e8:16:e7:15)	
Device1	
Tag Group Property	
Tag Group Name: TagGroup	
OK	Cancel

2. Click the **New Tag** icon and then configure the tag properties.

MX-AOPC UA Server	teral is the local distance in a
<u>File Edit View Tools Runt</u>	ime <u>H</u> elp
1 🖬 🖬 🖬 🗐) 📾 🛐 🕵 👗 🗈 🗈
Active Device List Constraints Active Device List Constraints Active Device Group List Adduss Device Group 1 DeviceGroup 1 TagGroup 1 Tag Property Tag Name: Description: Start Address:	
Function Code: Data Type: Access Right:	Read/Write Coils (0xxxx) Boolean
	OK Cancel

3. The tag will be listed in the tag group.

MX-AOPC UA Server <u>File Edit View T</u> ools <u>R</u> untime <u>H</u> el	0				
💼 🖬 📅 🗊 🗊 📾	🔊 🕵 📈 🗈	Ê 😭 🗿	N		
- Active Device List	Tag Name	Tag Type	Functin Code	Start Address	Da
E2242-01 (00:90:e8: 16:e7: 15)	🥎 Tag1	Polling	0	0000	Bo
Device1 TagGroup1					

Updating Configurations to the Server

When you finish updating the configuration, click the **Update Configuration to Server** icon to update the configuration to the Server Runtime. When the **Verify Password** window pops up, enter the correct password and then click **OK** to activate the changes.

MX-AOPC UA Server			
<u>File E</u> dit <u>V</u> iew <u>T</u> ools <u>R</u> untime <u>H</u> elp			
1 🗊 💼 🗊 🗊 🔊	🔊 📽 🗡 🗈	i 🔓 🗿 🜆 🌉	
Active Device List E2242-01 (00:90:e8:16:e7:15) Modbus Device Group List OviceGroup1 Tom Device1 TagGroup1	Group No 1	Group Name DeviceGroup 1	

Using the Viewer to Check Tag Values

After completely updating the Server Runtime settings, click the **Viewer** icon to open the viewer to check that the tag value is correct.

K MX-AOPC UA Server				
<u>File Edit View Tools Runtime H</u> elp				
💼 🗊 💼 🗊 🗊 🔊	🔊 📽 🗡 🖻	Ê 😭 🗿 🧦	S	
Active Device List	Group No	Group Name	_	
E2242-01 (00:90:e8:16:e7:15)	1	DeviceGroup1		

The device tree in the left panel should be the same as the tree displayed by the configuration console. Click a tag group name to display the group's tag values in the right panel.

File Tools	Help						
	42-01 (00:90:e8:16: Device Group List	e7:15)	Tag Name	Data Type Boolean	Value 0	Timestamp 21:20:08 2014/12/29	
Date 2014/12/29 2014/12/29 2014/12/29 2014/12/29	Time 13:22:01 13:22:01 13:21:57 13:21:57	The tag The tag	E2242-01.DI-00 changes	agGroup1.Tag1 changes the va			
<							

Configuring OPC UA Settings

You should configure OPC UA settings before connecting an OPC UA client to MX-AOPC UA Server. To access OPC UA Settings options, click **Tools** \rightarrow **OPC UA Settings**. Instructions for each option are given below.

/er			
ools <u>R</u> untime <u>H</u> elp			
Serial Port Settings	X 🗈 🖻 😭 🚚 🧶		
AOPC Settings DCOM Configuration	Group Name		
OPC UA Settings	Server Endpoints Settings		
Viewer System Log	Security Policy Certificates Management		
Change Password			
Options			
	Serial Port Settings AOPC Settings DCOM Configuration OPC UA Settings Viewer System Log Change Password		

Server Endpoints Settings

"Server Endpoints Settings" are a list of interfaces that UA clients can use to communicate with MX-AOPC UA Server. MX-AOPC UA Server supports Universal Resource Locator (URL) binary type protocols.

To add a new interface to the list, select the appropriate network interface in the **Network Interface** drop-down box and type the port number for the URL in the **Port Number** input box. Click **Add** to add this new server endpoint to the list.

Server Endpoints S	ettings	X
URL		Status
	.12.112:53192/MXAOPC/UAServer	Valid
000000000000000000000000000000000000000		
Network Interface:	Intel(R) 82577LM Gigabit Network Con	nection 🔹
Port Number:	53192	
	opc.tcp://192.168.12.112:53192/MXA	OPC/UAServer
Add	Delete Apply	Close Help

• Security Policy

The security policy is applied to connections between OPC UA clients and MX-AOPC UA Server. Security options that can be selected are **None**, **Basic128Rsa15: Sign**, or **Basic128Rsa15: Sign and Encrypt**. If Basic128Rsa15: Sign, Basic128Rsa15: Sign and Encrypt, or both of these options are selected, you will need to configure **Certificates Management** settings (see below).



 NOTE
 The default Account and Password for connecting an OPC UA client to the server are:

 Account:
 admin

 Password:
 moxa

 The account name cannot be changed. To change the password, click Tools → Change Password.

Certificates Management

If the security policy is set to **Basic128Rsa15: Sign, Basic128Rsa15: Sign and Encrypt**, or both, importing an OPC UA client's CA (Certificate Authority) file into MX-AOPC UA Server, and exporting the MX-AOPC UA Server's CA file to OPC UA Clients are both required.

Click the **Trust Clients** tab, click **Import**, and select the client's CA file to import it into MX-AOPC UA Server.

ver	um:charleszk-chen.:	moxa.com:UALocalDiscover;
	1	+
	m	III

Click the **Instance Certificates** tab and click **Export Server Certificate** to export MX-AOPC UA Server's CA file to OPC UA Clients.

Certificates Management	×
Trust Clients Instance Certificates	
View Server Certificate Export Server Certificate	Certificate MX-AOPC UA Server is from 2014/10/28 09:42:23 AM to 2019/10/2 09:42:23 AM
Reissue Certificate	
	Close Help

Click the **Update Configuration to Server** icon to enable any changes that have been made to the OPC UA configuration.

NOTE After reissuing certificates or re-installing MX-AOPC UA Server, you will need to once again export the Server Certificate to OPC UA clients.

3

Configuration Console

The following topics are covered in this chapter:

- Main Screen Overview
- Menu Items
 - ≻ File
 - ≻ Edit
 - > View
 - > Tools
 - > Runtime
 - > Help

Main Screen Overview

MX-AOPC UA Server's configuration console displays the mapped I/O device with the settings of every I/O tag. It also shows the Server Runtime status and number of OPC clients.

	iew <u>T</u> ools <u>R</u> ur	ntime <u>H</u> elp	2			
1	E I .	1 🔊 🖁	2 📽 🕺 🖻	là 🔒 🛃 🦣	3 🌉	
Active D			Tag Name	Data Type	Access Rights	Description
	42-01 (00:90:e8:16 Device Group List	e7:15)	😵 E2242-01.DI-00	Boolean	Read-only	DI
Modbus			😵 E2242-01.DI-01	Boolean	Read-only	DI
	Device1		🧐 E2242-01.DI-02	Boolean	Read-only	DI
	TagGroup1		🥸 E2242-01.DI-03	Boolean	Read-only	DI
	ingoroup1		🧐 E2242-01.DI-04	Boolean	Read-only	DI
			🧐 E2242-01.DI-05	Boolean	Read-only	Door Status
			🍫 E2242-01.DI-06	Boolean	Read-only	DI
			🍫 E2242-01.DI-07	Boolean	Read-only	DI
	4		😵 E2242-01.DI-08	Boolean 5	Read-only	DI
			🥸 E2242-01.DI-09	Boolean	Read-only	DI
			🥸 E2242-01.DI-10	Boolean	Read-only	DI
			😵 E2242-01.DI-11	Boolean	Read-only	DI
			SE2242-01.SysConnect-00	Boolean	Read-only	System Connection
Date	Time	Event				
ate 014/12/29	Time 13:22:01		f the tag 'E2242-01.DI-11' is c	changed to 0		
		The value of	f the tag 'E2242-01.DI-11' is c f the tag 'E2242-01.DI-10' is c			
014/12/29 014/12/29	13:22:01	The value of the v	-	changed to 0		
014/12/29 014/12/29 014/12/29	13:22:01 13:22:01	The value of The value of The value of	of the tag 'E2242-01.DI-10' is c	changed to 0 changed to 0		
014/12/29 014/12/29 014/12/29 014/12/29	13:22:01 13:22:01 13:22:01	The value of The value of The value of The value of	f the tag 'E2242-01.DI-10' is c f the tag 'E2242-01.DI-09' is c	changed to 0 changed to 0 changed to 0 changed to 0		
014/12/29 014/12/29 014/12/29 014/12/29 014/12/29 014/12/29	13:22:01 13:22:01 13:22:01 13:22:01	The value of The value of The value of The value of The value of	f the tag 'E2242-01.DI-10' is c f the tag 'E2242-01.DI-09' is c f the tag 'E2242-01.DI-08' is c	changed to 0 changed to 0 changed to 0 changed to 0		
014/12/29	13:22:01 13:22:01 13:22:01 13:22:01 13:22:01	The value of The value of The value of The value of The value of The value of	If the tag 'E2242-01.DI-10' is of f the tag 'E2242-01.DI-09' is of f the tag 'E2242-01.DI-09' is of f the tag 'E2242-01.DI-08' is of f the tag 'E2242-01.DI-07' is of	changed to 0 changed to 0 changed to 0 changed to 0 changed to 0 6		
014/12/29 014/12/29 014/12/29 014/12/29 014/12/29 014/12/29 014/12/29	13:22:01 13:22:01 13:22:01 13:22:01 13:22:01 13:22:01	The value of The value of The value of The value of The value of The value of The value of	f the tag 'E2242-01.DI-10' is o f the tag 'E2242-01.DI-09' is o f the tag 'E2242-01.DI-08' is o f the tag 'E2242-01.DI-07' is o f the tag 'E2242-01.DI-06' is o	changed to 0 changed to 0 changed to 0 changed to 0 changed to 0 changed to 0		
014/12/29 014/12/29 014/12/29 014/12/29 014/12/29 014/12/29 014/12/29 014/12/29	13:22:01 13:22:01 13:22:01 13:22:01 13:22:01 13:22:01 13:22:01 13:22:01	The value of The value of	If the tag 'E2242-01.DI-10' is of f the tag 'E2242-01.DI-09' is of f the tag 'E2242-01.DI-08' is of f the tag 'E2242-01.DI-07' is of f the tag 'E2242-01.DI-06' is of f the tag 'E2242-01.DI-05' is of	changed to 0 changed to 0 changed to 0 changed to 0 changed to 0 changed to 0 changed to 0		
014/12/29 014/12/29 014/12/29 014/12/29 014/12/29 014/12/29 014/12/29 014/12/29 014/12/29	13:22:01 13:22:01 13:22:01 13:22:01 13:22:01 13:22:01 13:22:01 13:22:01	The value of The value of	f the tag 'E2242-01.DI-10' is of f the tag 'E2242-01.DI-09' is of f the tag 'E2242-01.DI-08' is of f the tag 'E2242-01.DI-07' is of f the tag 'E2242-01.DI-06' is of f the tag 'E2242-01.DI-05' is of f the tag 'E2242-01.DI-06' is of	changed to 0 changed to 0		
014/12/29 014/12/29 014/12/29 014/12/29 014/12/29 014/12/29 014/12/29 014/12/29 014/12/29 014/12/29	13:22:01 13:22:01 13:22:01 13:22:01 13:22:01 13:22:01 13:22:01 13:22:01 13:22:01	The value of The value of	f the tag 'E2242-01.DI-10' is of f the tag 'E2242-01.DI-09' is of f the tag 'E2242-01.DI-09' is of f the tag 'E2242-01.DI-07' is of f the tag 'E2242-01.DI-06' is of f the tag 'E2242-01.DI-05' is of f the tag 'E2242-01.DI-03' is of f the tag 'E2242-01.DI-03' is of	changed to 0 changed to 0		
014/12/29 014/12/29 014/12/29 014/12/29 014/12/29 014/12/29 014/12/29 014/12/29 014/12/29 014/12/29	13:22:01 13:22:01 13:22:01 13:22:01 13:22:01 13:22:01 13:22:01 13:22:01 13:22:01 13:22:01	The value of The value of	f the tag 'E2242-01.DI-10' is of f the tag 'E2242-01.DI-09' is of f the tag 'E2242-01.DI-09' is of f the tag 'E2242-01.DI-07' is of f the tag 'E2242-01.DI-06' is of f the tag 'E2242-01.DI-05' is of f the tag 'E2242-01.DI-09' is of f the tag 'E2242-01.DI-03' is of f the tag 'E242-01.DI-03' is of f the tag 'E242-01.DI-03' is of f	changed to 0 changed to 0		
014/12/29 014/12/29 014/12/29 014/12/29 014/12/29 014/12/29 014/12/29 014/12/29 014/12/29	13:22:01 13:22:01 13:22:01 13:22:01 13:22:01 13:22:01 13:22:01 13:22:01 13:22:01 13:22:01 13:22:01	The value of The value of	f the tag 'E2242-01.DI-10' is of f the tag 'E2242-01.DI-09' is of f the tag 'E2242-01.DI-08' is of f the tag 'E2242-01.DI-06' is of f the tag 'E2242-01.DI-06' is of f the tag 'E2242-01.DI-03' is of f the tag 'E2242-01.DI-04' is of f the tag 'E2242-01.DI-03' is of f the	changed to 0 changed to 0	d to 0	
014/12/29 014/12/29 014/12/29 014/12/29 014/12/29 014/12/29 014/12/29 014/12/29 014/12/29 014/12/29 014/12/29	13:22:01 13:22:01 13:22:01 13:22:01 13:22:01 13:22:01 13:22:01 13:22:01 13:22:01 13:22:01 13:22:01 13:22:01	The value of The value of	f the tag 'E2242-01.DI-10' is of f the tag 'E2242-01.DI-09' is of f the tag 'E2242-01.DI-08' is of f the tag 'E2242-01.DI-06' is of f the tag 'E2242-01.DI-06' is of f the tag 'E2242-01.DI-03' is of f the tag 'E2242-01.DI-04' is of f the tag 'E2242-01.DI-03' is of f the	hanged to 0 hanged hanged h	d to 0	

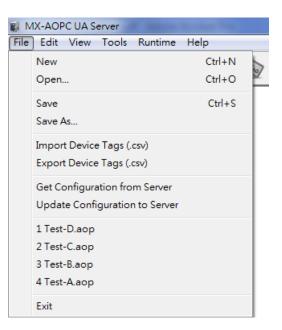
No.	Zone	Description
1	Software Title	Displays the name of the software: MX-AOPC UA Server
2	Menu	All configuration functions
3	Quick Launch Bar	Frequently used icons
4	Device View	All devices and tags
5	Detailed View	Detailed settings of the devices and tags
6	Log View	Server Runtime logs
7	Server Runtime Status	Shows if the Server Runtime Service is Running or Stopped
8	Server Time	Displays the server time (same as the PC's time)
9	Numbers of Device	Displays the number of devices listed in Device View
10	Numbers of OPC Client	Displays the number of OPC clients connected to MX-AOPC UA Server

Menu Items

All operations can be accessed from the following Menu items.

File

Use the **File** menu to manage project files, device tags, and server configuration.



- **New:** Create a new project file.
- **Open:** Open an existing project file.
- Save: Save the current project.
- Save As: Save the current project file as another project with a different filename.
- Import Device Tags (.csv): Import device tags into a Modbus device from a csv file.

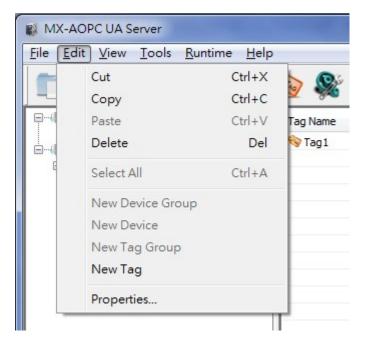
Item	Format	Length	Note
GroupName	0 to 9, A to Z, a to z, Symbols	30	"." is not allowed.
TagName	0 to 9, A to Z, Symbols	30	"." is not allowed.
FunctionCode	1 to 4	1	1: Read/Write Coils
			2: Read Discrete Inputs
			3: Read Input Registers
			4: Read/Write Holding Registers
StartAddress	0 to 65535	5	
DataType	Boolean	-	Use Boolean with
	Unsigned short integer		FunctionCode 1 or 2.
	Unsigned integer		• Use other DataTypes with
	Float		FunctionCode 3 or 4.
Description	0 to 9, A to Z, a to z, Symbols	25	

- **Export Device Tags (.csv):** Export device tags from a Modbus device to a csv file.
- Get Configuration from Server: Get the latest configuration from the Server Runtime.
- **Update Configuration to Server:** Update the configuration to the Server Runtime from the Configuration Console.
- **Previous saved files:** Quickly open previously saved project files.
- **Exit:** Close the Configuration Console.

- NOTE Active Tags cannot be imported into an Active Device folder in the Configuration Console from a csv file, or vice versa. Active Tags are automatically created by a Moxa active tag device. Refer to the **Specifications** section for the **Products that Support AOPC Protocol**, and refer to the device's user's manual to see how to create active tags using the device's configuration utility.
- **NOTE** To get a csv template, create a Modbus device and execute the **Export Device Tags (.csv)** function from the Modbus Device.

Edit

Use the **Edit** menu to edit settings of devices and tags.



- **Cut:** Cut a tag group or selected tags.
- **Copy:** Copy a tag group or selected tags.
- Paste: Paste a cut or copied tag group into a device, or paste cut or copied tags into a tag group.
- Delete: Delete the selected device, a selected tag group, or selected tags.
- Select All: Select all tags in a tag group.
- New Device Group: Create a new device group.
- New Device: Create a new Modbus device.
- New Tag Group: Create a new tag group.
- New Tag: Create a new tag.
- Properties: Modify the settings of an existing device group, device, tag group, or tag.
- **NOTE** The properties of an active device or active tag cannot be modified from the configuration console. Refer to the device's user's manual to see how to use the device's configuration utility to change active device or active tag settings.

View

Use the **View** menu to change the display settings of the Device View panel.

MX-AOPC	UA Server	
<u>File</u> <u>E</u> dit	<u>/</u> iew <u>T</u> ools <u>R</u> untime <u>H</u>	elp
	Expand All Devices	Ctrl+H
	Collapse All Devices	Ctrl+H
+ Active	Device List	Group No

- Expand All Devices: Expand all devices in the Device View panel.
- **Collapse All Devices:** Collapse all devices in the Device View panel.

Tools

Use the **Tools** menu to configure serial ports, OPC settings, system log, password, console environment settings, or to launch Viewer.

MX-AOPC UA Serve		-	
<u>File Edit View To</u>	ools <u>R</u> untime <u>H</u> elp		
	Serial Port Settings		X
	AOPC Settings	-	00
Active Device	DCOM Configuration		
Modbus Devic	OPC UA Settings	-	
	Viewer		
	System Log	-	
	Change Password		
	Options		

• Serial Port Settings

Port	Baudrate	Parity	Data Bits	Stop Bits	Flow Control	
COM1	115200	None	8	1	None	
COM2	115200	None	8	1	None	
COM3	115200	None	8	1	None	
COM4	115200	None	8	1	None	
COM5	115200	None	8	1	None	
COM6	115200	None	8	1	None	
COM7	115200	None	8	1	None	
COM8	115200	None	8	1	None	
COM9	115200	None	8	1	None	
001410	115000	N	0		NI	
aud Rate:	115200	✓ Flow	Control: None	•		
Data Bits:	8	▼ 5	top Bits: 1	•	Parity: None	•

- > Baud Rate: 300 to 921600 bps; default: 115200 bps
- > Flow Control: None, RTS/CTS, or XON/XOFF; default: None
- > Data Bits: 5, 6, 7, or 8; default: 8
- Stop Bits: 1 or 2; default: 1
- > Parity: Even, Odd, or None; default: None

AOPC Settings

AOPC Settings		
Default Network Interface:	Intel(R) 825	77LM Gigabit Network Connection
Active Tag Listen Port:	9900	Enabled
Command Timeout:	30	sec(s)
Heartbeat Tolerance:	30	sec(s)
		OK Cancel

- Default Network Interface: Select a network interface that remote devices can use to connect to MX-AOPC UA Server.
- Active Tag Listen Port: The preferred TCP socket port for receiving active tags from remote devices (default: 9900).
- Command Timeout: The socket timeout interval (Port: 9500 and 9900) for controlling output channels on remote devices: 0 to 60; default: 30 sec.
- Heartbeat Tolerance: An additional timeout interval to wait for a heartbeat signal from remote devices: 0 to 60; default: 30 sec.
- DCOM Configuration: Configure DCOM settings for your security policy. Refer to Appendix A for details.
- OPC UA Settings

MX-AOPC UA Serv	er	-	Address Manhor Prop. (1)	
<u>File Edit View</u>	ools <u>R</u> untime <u>H</u> elp			
	Serial Port Settings		X 🖻 🖻 🕯 🧦	
Active Device Modbus Device	AOPC Settings DCOM Configuration		Group Name	
🗄 🗍 DeviceGr	OPC UA Settings	•	Server Endpoints Settings	
	Viewer System Log	•	Security Policy Certificates Management	
	Change Password			
	Options			

> Server Endpoints Settings:

"Server Endpoints Settings" are a list of interfaces that UA clients can use to communicate with MX-AOPC UA Server. MX-AOPC UA Server supports Universal Resource Locator (URL) binary type protocols.

To add a new interface to the list, select the appropriate network interface in the **Network Interface** drop-down box and type the port number for the URL in the **Port Number** (default: 53192) input box. Click **Add** to add this new server endpoint to the list.

erver Endpoints S	ettings	×
URL		Status
opc.tcp://192.168	12.112:53192/MXAOPC/UAServer	Valid
Network Interface:	Intel(R) 82577LM Gigabit Network Co	nnection 🔻
Port Number:	53192	
	opc.tcp://192.168.12.112:53192/MXA	AOPC/UAServer
Add	Delete Apply	Close Help

> Security Policy

The security policy is applied to connections between OPC UA clients and MX-AOPC UA Server. Security options that can be selected are **None**, **Basic128Rsa15**: **Sign**, or **Basic128Rsa15**: **Sign and Encrypt**. If Basic128Rsa15: Sign, Basic128Rsa15: Sign and Encrypt, or both of these options are selected, you will need to configure **Certificates Management** settings (see below).

✓ None	
🔲 Basic 128Rsa 15 - Sign	
🔲 Basic 128Rsa 15 - Sign	and Encrypt
	OK Cancel

NOTE The default Account and Password for connecting an OPC UA client to the server are:

Account: admin

Password: moxa

The account name cannot be changed. To change the password, click **Tools** \rightarrow **Change Password**.

> Certificates Management

If the security policy is set to **Basic128Rsa15: Sign**, **Basic128Rsa15: Sign and Encrypt**, or both, importing an OPC UA client's CA (Certificate Authority) file into MX-AOPC UA Server, and exporting the MX-AOPC UA Server's CA file to OPC UA Clients are both required.

Click the **Trust Clients** tab, click **Import**, and select the client's CA file to import it into MX-AOPC UA Server.

Client Name			URI			
👷 UA Local D)iscovery Server		urn:charleszk-	-chen.mox	a.com:UALc	calDiscover ₃
•		III				۰.
Import	Export	Remove	Reject		View (ertificate

Click the **Instance Certificates** tab and click **Export Server Certificate** to export MX-AOPC UA Server's CA file to OPC UA Clients.

Certificates Management	×
Trust Clients Instance Certificates	
View Server Certificate Certificate MX-AOPC UA S is from 2014/10/28 09:42:23 A Export Server Certificate 2019/10/2 09:42:23 AM	
Reissue Certificate	
Close	Help

Click the **Update Configuration to Server** icon to enable any changes that have been made to the OPC UA configuration.

NOTE After reissuing certificates or re-installing MX-AOPC UA Server, you will need to once again export the Server Certificate to OPC UA clients.

• **Viewer:** Open the viewer to check that the tag value is correct.

• System Log

MX-AOPC UA Serv	er	-	and the Real Property lies				
<u>File Edit View Tools Runtime H</u> elp							
	Serial Port Settings		XD				
	AOPC Settings	- 1					
Active Device	DCOM Configuration OPC UA Settings			Group Name			
Modbus Devic			DeviceGroup1				
DeviceGri							
	System Log	+	Save to Te	ext File			
	Change Password		Reset System Log System Log Settings				
	Options	5	oystem bog settings				

Save to Text File: Save MX-AOPC UA Server's system log to a text file. You will be required to enter a password (default password: moxa).

Verify Password					
Please enter password:					
••••					
OK Cancel					

 Reset System Log: Reset MX-AOPC UA Server's system log. You will be required to enter a password (default password: moxa).

ActiveOPC	
Do you want to reset system log?	Verify Password Please enter password:
Yes No	OK Cancel

System Log Settings: Defines the maximum number of records that can be saved in the MX-AOPC UA Server's system log: 1 to 30000; default: 30000.

System Log Settings						
Event Records:	30000		(1~30000)			
		ОК	Cancel			

• **Change Password:** Change the MX-AOPC UA Server's system password. The password is required when updating configurations to System Runtime, saving system logs to a text file, or resetting system log. Length: 4 to 128; acceptable characters: A to Z, a to z, 0 to 9, Symbols; default: moxa.

Change Password		x
Old Password:		
New Password:		
Confirm Password:		
	OK Car	icel

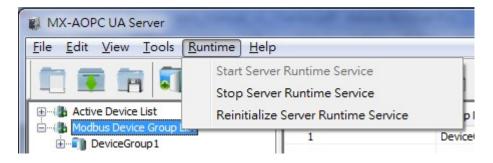
• **Options:** Configure environment settings for the server's configuration console.

Options		
Startup		
Get configuration from Server		
Open previous configuration file		
Configuration File		
Automatically save configuration every	10	min(s)
Automatically save configuration before	updating to	server
Automatically save configuration before	exiting this o	console
		OK Cancel

NOTE If **Automatically save configuration every xx min(s)** is enabled, the configuration file will be automatically saved only when a file name is defined. Be sure to save your configuration file after creating a new project file.

Runtime

Use the Runtime menu to Start, Stop, or Reinitialize Server Runtime Service.



Help

Use the **Help** menu to launch the server's help documentation, to check the server's license status, to add a license file, or check server version.

MX-AOPC UA Server	
<u>File Edit View Tools Runtime</u>	Help
🔲 🗊 📻 💼 🗊 🦛	Server Help Licensing
Active Device List	About
i → ··· → Modbus Device Group List	1

• Server Help: Launch MX-AOPC UA Server's help documentation.

Licensing

MX-AOPC UA Server		
<u>File Edit View Tools Runtime</u>	Help	_
	Server Help	
	Licensing +	License Info
Active Device List	About	Add License File
Modbus Device Group List	1	DeviceGroup 1

License Info: Displays the server's User Code, License Status, and the Time Remaining on the license.
 Refer to Chapter 6: License Registration and Activation to learn how to activate the license.

User Code		
User Code:	1613EB128766	
License Status:	Trial Version	
Time Remaining:	11 days	
		ОК

- Add License File: Import a license file after completing the license registration process. Refer to Chapter 6: License Registration and Activation to learn how to activate the license.
- About: Displays MX-AOPC UA Server's version number and build number.



4

Device Management

The following topics are covered in this chapter:

Device Group

- > Adding a Device Group
- ➢ Editing a Device Group
- > Deleting a Device Group

Active Devices

> Deleting an Active Device from the Active Device Group List

Modbus Devices

- > Adding a Modbus Device to a Device Group
- Editing a Modbus Device
- > Deleting a Modbus Device
- > Moving a Modbus Device to a Different Device Group

Device Group

In this section we explain how to use the configuration console to add, edit, and delete device groups.

MX-AOPC UA Server's design logic is user-application oriented. As seen below, device groups can be created based on application, such as **SiteA** or **SiteB**.

MX-AOPC UA Server											
<u>File Edit Vie</u>	ew <u>T</u> ools <u>R</u> ur	ntime <u>H</u> elp									
	in (in (i		I	8 X		Ġ		Į	L		
Active De			Group No	0		Group Name					٦
	2-01 (00:90:e8:16	:e7:15)	1			SiteA					1
	Device Group List		2			SiteB					
SiteA	Logik E2242										
	Pump										
SiteB											
	Logik E2242										
	Pump										
											-
			-								
Date	Time	Event						_			
2014/12/29	13:22:01	The value	e of the tac	E2242-01.	DI-11' is c	nanged to 0				E	
2014/12/29	13:22:01		-	E2242-01.		-					4
2014/12/29	13:22:01	The value	e of the tag	E2242-01.	DI-09' is ch	nanged to 0					
2014/12/29	13:22:01	The value	e of the tag	E2242-01.	DI-08' is ch	nanged to 0					
2014/12/29	13:22:01	The value	e of the tag	E2242-01.	DI-07 is ch	nanged to 0					
2014/12/29	13:22:01	The value	e of the tag	E2242-01.	DI-06' is ch	nanged to 0					
2014/12/29	13:22:01	The value	e of the tag	E2242-01.	DI-05' is ch	nanged to 0					
2014/12/29	13:22:01	The value	e of the tag	E2242-01.	DI-04' is ch	nanged to 0					
2014/12/29	13:22:01	The value	e of the tag	E2242-01.	DI-03' is ch	nanged to 0					
2014/12/29	13:22:01	The value	e of the tag	E2242-01.	DI-02' is ch	nanged to 0					
2014/12/29	13:22:01	The value	e of the tag	E2242-01.	DI-01' is ch	nanged to 0					
2014/12/29	13:22:01	The value	e of the tag	E2242-01.	DI-00' is ch	nanged to 0					
2014/12/29	13:22:01	The value	e of the tag	g 'DeviceGro	up1.Device	1.TagGroup 1.	Tag1' is ch	hanged t	0 0		
2014/12/29	13:21:57		e of the tac	E2242-01.	SvsConne	ct-00' is change	d to 1			•	
										•	
Service Status: F	Running Tim	e: 13:55:46							Device Count: 3	OPC Client Count: 1	.11

Adding a Device Group

 Right click Modbus Device Group List and then click New Device Group in the popup menu, or click Modbus Device Group List to select it, and then click the New Device Group icon on the Quick Launch toolbar.

MX-AOPC UA Server							
<u>File Edit View Tools Runtime Help</u>							
📋 🗊 📅 🚺 🔊 🕸 😵							
Active Device List E2242-01 (00:90:e8:16:e7:15) Modbus Device Group List					Grou	ip <mark>No</mark>	
New Device Group							

Type in the name of the device group (max. length = 30 characters; "." is not allowed), and then click OK.
 Device Group Property

bettee droup htope	illy illustration of the second se	
Device Group Name:	DeviceGroup 1	
	ОК	Cancel

3. The new device group will be added to the **Modbus Device Group List**.



Editing a Device Group

Right click the device group you would like to edit and then click **Properties** in the popup menu, or click the device group to select it and then click the **Properties** icon on the Quick Launch toolbar to open the properties window.



Deleting a Device Group

Right click the device group you would like to delete and then click **Delete** in the popup menu, or click the device group to select it and then click the **Delete** icon from the Quick Launch toolbar.

MX-AOPC UA Serve	r					
<u>File Edit View To</u>	ols <u>R</u> untime <u>H</u> elp					
	i 🌒 🔊	ا 😥	X	Ê		-
E2242-01 (00:	E2242-01 (00:90:e8:16:e7:15) Modbus Device Group List		e	Enable	d	
	New Device					
	Delete	Ctrl+D				
	Properties					

Active Devices

In this section we explain how to use the configuration console to delete active devices.

MX-AOPC UA Server will automatically receive the registration from a Moxa active device located at a remote site. Refer to the Moxa I/O device's user's manual to learn how to use the device's configuration utility to create active tags.

Deleting an Active Device from the Active Device Group List

Right click the active device you would like to delete and then click **Delete** in the popup menu, or click the active device to select it and then click the **Delete** icon from the Quick Launch toolbar.



Modbus Devices

In this section we explain how to use the configuration console to add, edit, delete, and move Modbus devices.

Adding a Modbus Device to a Device Group

Right click the device group you would like to add a new Modbus device to and then click **New Device** in the popup menu. You may instead click the device group to select it and then click the **New Device** icon on the Quick Launch toolbar.

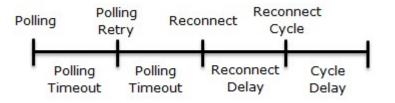


Ethernet Communication Port

If an Ethernet communication port is selected, the **Device Property** configuration window will appear as shown below:

Device	Name: Device1	Enable Data Collec	tion	
Communicatio	n Port: Intel(R) 82577LM Gigabit Netwo	•		
Pr	otocol: Modbus/TCP protocol			
Device Setting	S	Timeout Settings		
Unit ID:	_1 ▼	Reconnect Delay:	3000	ms
IP Address:	0.0.0.0	Reconnect Cycles:	3	
Port:	502	Cycle Delay:	3	sec(s)
		Polling Timeout:	3000	ms
		Polling Retries:	3	

- Device Name: Name of the Modbus device (max. length = 30; "." is not allowed).
- Enable Data Collection: Enable or disable data collection for this Modbus device.
- Communication Port: Select the communication interface of this Modbus device.
- Unit ID: The unit ID of this Modbus device (options: 1 to 247).
- IP Address: The IP Address of this Modbus device.
- Port: The TCP port of this Modbus device (options: 0 to 65535).
- Reconnect Delay: The delay time after the server tries to reconnect this Modbus device (options: 0 to 30000; default: 3000).
- Reconnect Cycles: The maximum number of reconnect cycles (options: 0 to 10; default: 3).
- **Cycle Delay:** The delay time after reaching the maximum number of reconnect cycles (options: 0 to 86400; default: 3).
- **Polling Timeout:** The timeout value when the server polls data from this Modbus device (options: 0 to 30000; default: 3000).
- **Polling Retries:** The maximum number of retries after a polling timeout occurs (options: 0 to 10; default: 3).



Serial Communication Port

If a serial communication port is selected, the **Device Property** configuration window will appear as shown below:

Device1	Enable Data Collect	tion	
COM1	•		
Modbus/RTU protocol			
	Timeout Settings		
•	Response Timeout:	3000	ms
	Polling Delay:	10	ms
	COM1 Modbus/RTU protocol	COM1 Modbus/RTU protocol Timeout Settings Response Timeout:	COM1 Modbus/RTU protocol Timeout Settings Response Timeout: 3000

The following configuration items only appear when a serial communication port is selected.

- Response Timeout: The timeout value when the server polls the data of this Modbus device (options: 0 to 30000; default: 3000).
- Polling Delay: The delay time after a polling timeout occurs (0 to 60000; default: 10).

The newly created device group will now be shown as belonging to this group.

MX-AOPC UA Server					x
<u>File Edit View Tools Runtime Help</u>					
🗊 🗊 📅 🗊 🌒 🔊	🔊 💸 🗡 🖻	Ê 🔒 谢 🦣	I 🧕		
Active Device List	Device Name	Enabled	Communication Port	Protocol	Un
E2242-01 (00:90:e8:16:e7:15)	Device 1	Yes	Intel(R) 82577LM Gigabit	Modbus/TCP protocol	1
	Device2	Yes	COM1	Modbus/RTU protocol	1
Device1					

Editing a Modbus Device

Right click the Modbus device you would like to edit and then click **Properties...** in the popup menu, or click the Modbus device to select it and then click the **Properties** icon in the Quick Launch toolbar to open the properties configuration window.

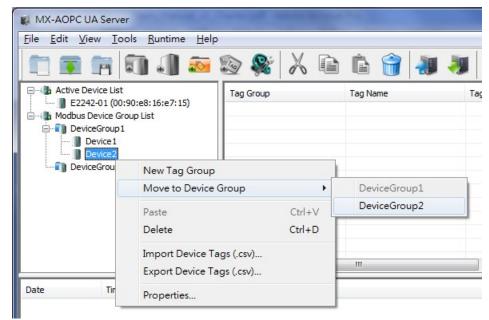


Deleting a Modbus Device

Right click the Modbus device and then click **Delete** in the popup menu, or click the Modbus device to select it and then click the **Delete** icon in the Quick Launch toolbar.

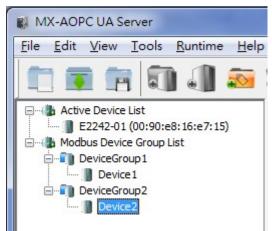
MX-AOPC UA Server				
<u>File Edit View Too</u>	ls <u>R</u> untime <u>H</u> elp	5		
	D 🕕 🔊	😰 🕵	X 🗈	Ê 😭 🐙
Active Device List		Tag Group		Tag Name
Device2	New Tag Group Move to Device			
	Paste		Ctrl+V	
	Delete		Ctrl+D	
	Import Device Tags (.csv) Export Device Tags (.csv)			m
Date Tin	Properties			

Moving a Modbus Device to a Different Device Group



1. Right click the Modbus device and then click the target device group in the popup menu.

2. The Modbus device will be moved to the target device group.



Tag Management

The following topics are covered in this chapter:

□ Tag Groups

- > Adding a Tag Group to a Device
- Editing a Tag Group
- Cutting a Tag Group
- > Copying a Tag Group
- Pasting a Tag Group
- > Deleting a Tag Group

Modbus Tags

- Adding a Modbus Tag to a Tag Group
- > Importing a List of Modbus Tags into a Modbus Device
- > Editing a Modbus Tag
- Deleting a Modbus Tag

Tag Groups

In this section we explain how to use the configuration console to add, edit, cut, copy, paste, and delete tag groups.

Adding a Tag Group to a Device

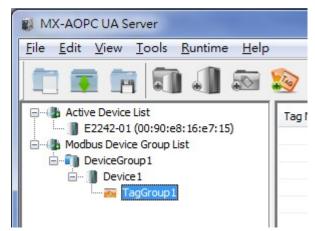
1. Right click the device that the tag group will be added to and then click **New Tag Group** in the popup menu, or click the device to select it and then click the **New Tag Group** icon on the Quick Launch toolbar.



2. Type in the name of the tag group (max. length = 30 characters; "." is not allowed) and then click OK.

Tag Group Property
Tag Group Name: TagGroup 1
OK Cancel

3. The new tag group will be added to the device.



Editing a Tag Group

Right click the tag group and then click **Properties** in the popup menu, or click the tag group to select it and then click the **Properties** icon on the Quick Launch toolbar.

File Edit View Tools Runtime Help Image: State of the state	MX-AOPC UA Server						
E2242-01 (00:90:e8:16:e7:15) Complete	<u>File Edit View Tools Runtime H</u> elp						
E2242-01 (00:90:e8:16:e7:15) Complete			🔊 🕵 d	X			
New Tag	Modbus Device Group Lis 		Tag Name				
		New Tag					
Cut Ctrl+X		Cut	Ctrl+X				
Copy Ctrl+C		Сору	Ctrl+C				
Delete Del		Delete	Del				
Properties		Properties					

Cutting a Tag Group

Right click the tag group and click **Cut** in the popup menu, or click the tag group to select it and then click the **Cut** icon on the Quick Launch toolbar.

MX-AOPC UA Server			and the second			
<u>File Edit View Tools Runtime H</u> elp						
		🈒 📚	X			
Active Device List E2242-01 (00:90:e8: Modbus Device Group List Modbus DeviceGroup1 Device1 TagGroup1		Tag Name				
	New Tag					
	Cut	Ctrl+X				
	Сору	Ctrl+C				
	Delete	Del				
	Properties					

Copying a Tag Group

Right click the tag group and then click **Copy** in the popup menu, or click the tag group to select it and then click the **Copy** icon on the Quick Launch toolbar.

MX-AOPC UA Server			
<u>File Edit View T</u> ools	<u>R</u> untime <u>H</u> elp		
1 🖬 🖬 🗊) 🕕 🔊	🔊 <table-of-contents> 📈</table-of-contents>	ê ê
Active Device List E2242-01 (00:90:e Modbus Device Group I DeviceGroup 1 Device1 TagGroup 1	list	Tag Name	Tag Typ
	New Tag		
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	Delete	Del	
	Properties		П

Pasting a Tag Group

Right click the Tag Group and then click **Paste** in the popup menu, or click the tag group to select it and then click the **Paste** icon on the Quick Launch toolbar.

MX-AOPC UA Serv	er				
<u>File Edit View To</u>	ools <u>R</u> untime <u>H</u> elp				
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Active Device Lis E2242-01 (00 OviceGroup OviceGroup OviceGroup TagG Ovice2):90:e8:16:e7:15) roup List 1	Tag Group	Tag Name		
	New Tag Group Move to Device Gro	oup 🕨			
	Paste	Ctrl+V			
	Delete	Ctrl+D			
Date 1	Import Device Tags (.csv) Export Device Tags (.csv)				
_	Properties				

Deleting a Tag Group

Right click the tag group and then click **Delete** in the popup menu, or click the tag group to select it and then click the **Delete** icon on the Quick Launch toolbar.

MX-AOPC UA Server		
<u>File Edit View Tools Runtime H</u> elp		
	😒 📽 👗 🗈	Ê 😭 🐙
Active Device List E2242-01 (00:90:e8:16:e7:15) Modbus Device Group List DeviceGroup1 Device1 Modbus Device1	Tag Name	Tag Type
New Tag		
Cut Copy	Ctrl+X Ctrl+C	
Delete	Del	
Properties		
		III

Modbus Tags

In this section we explain how to use the configuration console to add, edit, delete, and move a Modbus tag.

Adding a Modbus Tag to a Tag Group

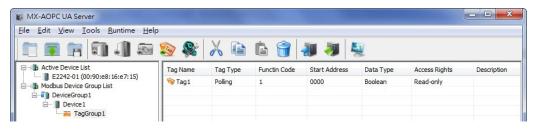
 Right click the tag group that the Modbus tag will be added to and then click **New Tag** in the popup menu, or click the tag group to select it and then click the **New Tag** icon on the Quick Launch toolbar.



2. Edit the items in the Tag Property window as needed.

Tag Property	
Tag Name:	Tagi
Description:	
Start Address:	0
Function Code:	Read/Write Coils (0xxxx)
Data Type:	Boolean 🔻
Access Right:	Read/Write
	OK Cancel

- Tag Name: The name of the Modbus tag (max. length = 30; "." is not allowed).
- **Description:** Description of this Modbus tag (max. length = 25).
- > Start Address: Define the start address of this Modbus tag (0 to 65535).
- Function Code: Selecting the function code for this Modbus tag (options: 1: Read/Write Coils; 2: Read Discrete Inputs; 3: Read Input Registers; 4: Read/Write Holding Registers).
- Data Type: Selecting the data type of this Modbus tag (options: Boolean; Unsigned short integer; Unsigned integer; Float).
- 3. Click the tag group to verify that the Modbus tag was added to this group.



Importing a List of Modbus Tags into a Modbus Device

To import a list of Modbus tags into a Modbus device, right click the Modbus device and then click **Import Device Tags (.csv)** in the popup menu. Select a csv file on your PC to import the tags listed in the csv file into the Modbus device. Refer to **Chapter 3: Configuration Console** \rightarrow **Menu Items** \rightarrow <u>File</u> for detailed csv file formats.



Editing a Modbus Tag

Click the Modbus tag to select it and then click the **Properties** icon on the Quick Launch toolbar.

ile <u>E</u> dit <u>V</u> iew <u>T</u> ools <u>R</u> untime <u>H</u> elp)						
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Active Device List	Tag Name	Tag Type	Functin Code	Start Address	Data Type	Access Rights	Description
E2242-01 (00:90:e8:16:e7:15) Modbus Device Group List DeviceGroup1	🥎 Tag1	Polling	1	0000	Boolean	Read-only	
🖃 🖷 Device1							

Deleting a Modbus Tag

Click the Modbus tag to select it and then click the **Delete** icon on the Quick Launch toolbar.

NX-AOPC UA Server							
<u>File Edit View Tools Runtime H</u> elp)						
📋 🐺 💼 🗊 🌒 🔊	🄊 💱	*	Ê 😭		2		
Active Device List	Tag Name	Tag Type	Functin Code	Start Address	Data Type	Access Rights	Description
E2242-01 (00:90:e8:16:e7:15)	🐨 Tag1	Polling	1	0000	Boolean	Read-only	
DeviceGroup1 Device1							
TagGroup1							

License Registration and Activation

Three versions of MX-AOPC UA Server are available. The trial version, which supports up to 30 connected devices, can be installed and used for 30 days without registration. To use the free and paid versions you must submit a license registration. Both free and paid versions can be used indefinitely, but the free version only supports up to 30 connected devices. The three versions are summarized in the following table:

Version	Connected Devices	Run Time	License File
Trial	Up to 30	30 days	Not Required
Free	Up to 30	Unlimited	Required
Paid	Unlimited	Unlimited	Required

Take the following steps to register a license.

Step 1:

Get the PC User Code from the MX-AOPC UA server's configuration console by clicking **Help** \rightarrow **License**. For the paid version, you will need to purchase a registration code from your Moxa distributor. The Registration Code can be found on the product label.

User Code: User Code: License Status: Time Remaining:	1613EB128766 Trial Version 11 days		MOXA® MN: MX-AOPC UA Server Product S/N: HAAD TOUDOUDUT Rev.: 1.0.0 Made in Taiwan PIN: 3033018000021
Time Kenaining:	11 days	ОК	PIN: 30930180000021 Registration Code:

Step 2:

Go to Moxa's Software Licensing website (<u>http://license.moxa.com</u>) and log in with your Moxa account and password, or apply for an account if this is your first visit to the site.

Step 3:

On the Software Licensing website, navigate to Activate Your Software \rightarrow Software Package \rightarrow MX-AOPC UA Server. Select Free Version and enter the User Code, or select Paid Version and enter both the User Code and Registration Code.

ΜΟΧΛ	
Home > Activate Your Software >	Software Package > MX-AOPC UA Server
 Free Version User Code: Paid Version Registration Code: User Code: 	
	Submit

Step 4:

Download the license file to a folder on your PC and unzip it.

Step 5:

From MX-AOPC UA server's configuration console, click **Help** \rightarrow **Licensing** \rightarrow **Add License File** to add the license file (.lic) to MX-AOPC UA Server.

MX-AOPC UA Server			
<u>File Edit View Tools Runtime H</u>	elp		
	Server Help		
	Licensing +	License Info	
Active Device List	About	Add License File	
🗄 🥻 Modbus Device Group List			

Step 6:

After license activation is complete, go to $Help \rightarrow License$ Info to check the current license status.

ActiveOPC	User Code			User Code		×
Complete license activation.	User Code: License Status: Max. Device Count:	1613EB128766 Free Version 30		User Code: License Status:	1613EB128766 Paid Version	
Finish			ОК			ОК

A Appendix

Port Usage

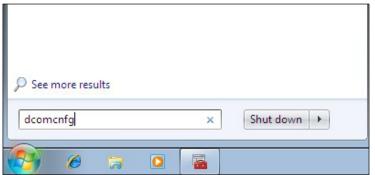
Port	Туре	Usage	
508	ТСР	Modbus Communication	
53192	ТСР	Default UA Server Endpoint	
9500	ТСР	Active OPC Server protocol	
9900	ТСР	Active OPC Server protocol	

Configuring DCOM Settings

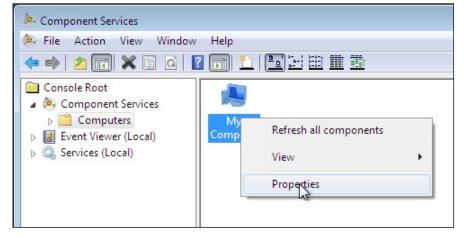
If the OPC client only supports the OPC Data Access (DA) standard, you will need to configure DCOM settings. Before launching MX-AOPC UA Server, configure the DCOM settings for your security policy.

NOTE If the OPC Client and Server software are installed on different servers, the DCOM, WORKGROUP, System Account, and Password settings should be the same.

1. Go to the **START** menu and type **dcomcnfg** to activate the **Component Services** dialog box.



 Right click My Computer under Console Root → Component Services → Computers, and click Properties to open the My Computer Properties dialog box.



3. Click the **COM Security** tab and edit who is allowed by default to access, launch, or activate the applications or objects.

General	Options	Default Prop	perties
Default Protocols	COM Sec	urity N	ISDTC
Access Permissions			
	is allowed default acce		
also set limits on a	pplications that determi	ne their own permis	ssions.
	Modifying access perm		
securely.	ations to start, connect,	tunction and/or ru	n
	Edit Limits	Edit Defa	ault
		h	5
aunch and Activatio	on Permissions		
		on applications that	
determine their ow Caution: affect the		activation permission	ns can
determine their ow Caution: affect the	n permissions. Modifying launch and a a ability of applications t	activation permission	ns can nction

4. Add **Everyone**, **INTERACTIVE**, **NETWORK**, and **SYSTEM**, and set **Allow** permission to all of these groups.

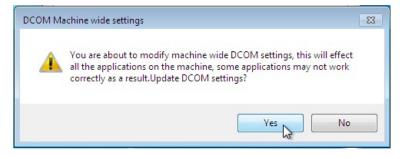
Access Permission		? 🔀
Default Security		
Group or user names:		
& Everyone		
SYSTEM		
	Add	Remove
Permissions for NETWORK	Allow	Deny
Local Access	V	
Remote Access		
Leam about access control and	permissions	
	OK .	Cancel
	- Con	

Permissions for Everyone Allow Den	
Local Launch	
Remote Launch	Local Launch Remote Launch Local Activation

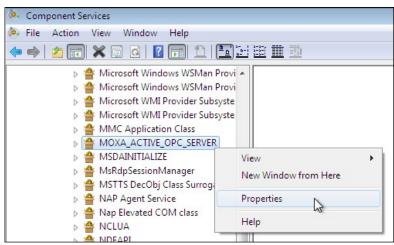
5. Click the **Default Properties** tab and check if the settings are the same as shown in the screenshot below.

		8
Default Protocols	COM Security	MSDTC
General	Options	Default Properties
Enable Distributed CC	DM on this computer Services on this compute	r
Default Distributed CO	M Communication Properti	es
The Authentication Le	vel specifies security at the	e packet level.
Default Authenticatio	on Level:	
Connect		•
Default Impersonatio	n Level:	
Default <u>I</u> mpersonatio	n Level:	•
Identify Security for reference t and that the default im	n Level: tracking can be provided i personation level is not an Il security for reference tra	onymous.

6. Click **Yes** when the following warning message appears.



 Go back to the Component Services dialog box, and right click MOXA_ACTIVE_OPC_SERVER under Console Root → Component Services → Computers → My Computer → DCOM Config, and then click Properties.



8. Click the General tab, and set the Authentication Level to Connect.

ieneral Location Secu	urity Endpoints Identity
General properties of th	is DCOM application
Application Name:	MOXA_ACTIVE_OPC_SERVER
Application ID:	{6cbf6ab8-1ba8-4a2b-8b92-554d29d378f9}
Application Type:	
Authentication Level:	Connect
Local Path:	C:\Program Files\Moxa\ActiveOPC\Server\ACT
learn more shout setting	these properties
Leam more about <u>setting</u>	these properties.

9. Click the Security tab. You may either apply the default settings of Access, Launch, and Activation Permissions to the Active OPC Server or customize the permission settings. If you would like to customize the settings, make sure that Everyone, INTERACTIVE, NETWORK, and SYSTEM are added, and the permission for these groups is set to Allow.

Launch and Activation Permissions	
Cu <u>s</u> tomize	<u>E</u> dit
Access Permissions	
Ose Default	
⊚ Custo <u>m</u> ize	E <u>d</u> it
Configuration Permissions	
🔘 Use Defau <u>l</u> t	
Oustomize	Edit
Leam more about <u>setting these properties</u> .	

10. Click the **Identity** tab and make sure **The interactive user** is selected. If the MX-AOPC UA Server is running as a Windows service, **The system account** is selected. Now DCOM is ready to accept all incoming connections.

MOXA_ACTIVE_OPC_SERVER Properties	? <mark>×</mark>
General Location Security Endpoints Identity	
Which user account do you want to use to run this applicat	ion?
The interactive user.	
◎ The launching user.	
○ This user.	
User:	Browse
Password:	
Confirm password:	
The system account (services only).	
Leam more about <u>setting these properties</u> .	
OK Cancel	Apply