## **MX-AOPC UA Logger User's Manual**

Edition 2.0, March 2018

www.moxa.com/product



## **MX-AOPC UA Logger User's Manual**

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## 1 Introduction

The following topics are covered in this chapter:

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

### **Overview**

With most remote data acquisition systems, during daily operations additional human resources are needed to collect data manually from remote storage devices for loading into a database. Even with remote I/O devices remotely collecting data over a network, software must be developed to handle the task of converting and uploading data logs. Moxa's MX-AOPC UA Logger not only makes real-time data collection much easier, it also simplifies the conversion of historical data into database-ready formats. Moxa's MX-AOPC UA Logger interacts directly with our MX-AOPC UA Server, working as a bridge between field data and cloud storage, as well as stored databases or spreadsheets. The MX-AOPC UA Logger can collate tags from individual Moxa remote I/O devices into the same cloud, database, or spreadsheet, freeing users from the need to manipulate data after processing.

One of the benefits of using remote I/O devices is that data can be collected over a network from a central site. In an ideal operation, after a network failure remote I/O devices should be able to transmit data logs that were collected while the network was offline. Moxa's MX-AOPC UA Logger makes this not only possible, but easy. MX-AOPC UA Loggers provide a standard OPC interface that interacts with MX-AOPC UA Servers for real-time data collection. After each network connection, an MX-AOPC UA Logger will compare historical data stored on the microSD cards located in individual ioLogik 2500 devices with the real time data it has already stored locally, and then supplement any missing data by requesting that the ioLogik 2500 retransmit the lost data. Furthermore, MX-AOPC UA Logger also supports functions for providing data on schedule and on demand. It will automatically retrieve the lost data when the on-schedule or on-demand function is triggered.

The MX-AOPC UA Logger includes:

- Logger Runtime Service: Starts as a service by default after installation.
- Configuration Console: A configuration tool for configuring settings.

## System Requirements

### Hardware Requirements

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

### **Software Requirements**

Operating System: Microsoft Windows 7/8/10, Microsoft Windows Server 2003/2008/2012 Microsoft .NET Framework: v3.5 Service Pack 1 Editor (optional): Microsoft Office 2003 (Access or Excel) or later Database (optional): Oracle database (x86), Microsoft SQL Server (x86), MySQL (x86) Cloud (optional): Microsoft Azure

## **Specifications**

### **OPC Specifications**

OPC Unified Architecture: 1.02

### Products that Support Data Supplement Auto Mode, on Schedule, and on Demand Model Names: ioLogik 2500 series

Note: Please check Moxa's website for the most up-to-date list of supported products.

### Fully Supported OPC UA Client Profiles

- Core Client Facet
- User Token: User Name Password Client Facet
- User Token: X509 Certificate Client Facet
- Security Policy: Basic128Rsa15
- Security Policy: None
- Data Access Client Facet
- UA-TCP UA-SC UA Binary
- Attribute Write Client Facet
- Data Change Subscriber Client Facet

## **Getting Started**

The following topics are covered in this chapter:

- Designing the System Architecture
- Installing the MX-AOPC UA Logger
- Opening the Configuration Console
- Configuring the MX-AOPC UA Logger Settings
- Connecting to the MX-AOPC UA Server
  - > Getting the Server Endpoint from the MX-AOPC UA Server
  - Connecting to MX-AOPC UA Servers
- Creating Loggers
- Starting Runtime Service
- Starting Recording
- Testing the Data Supplement Function
- Testing the Data Supplement on Demand Function
- Testing the Data Supplement on Schedule Function

## **Designing the System Architecture**

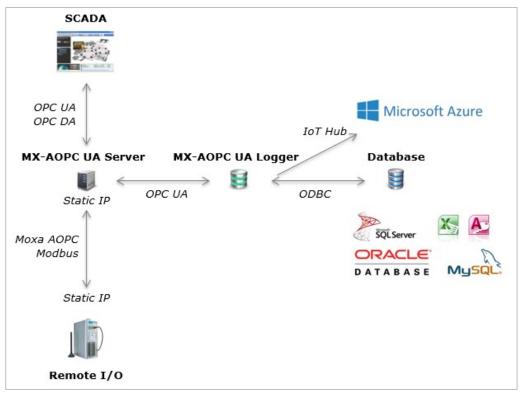
The MX-AOPC UA Logger provides two main functions.

- Storing real-time data collected through an MX-AOPC UA Server from individual I/O devices to a database or spreadsheet.
- Retrieving buffered data stored on a microSD card located in a Moxa device that supports data buffering, such as the Moxa ioLogik 2500 series, and then supplementing the database or spreadsheet with missing data.

We recommend using one of the following two scenarios when designing the system architecture:

### Scenario 1: Write real-time data to a database, spreadsheet, or Azure Cloud

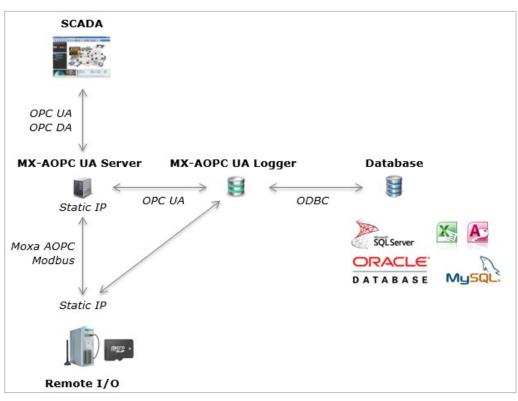
- MX-AOPC UA Logger saves data from selected OPC tags to a database, spreadsheet, or Azure Cloud. The data comes from MX-AOPC UA Server only, which collects data from field devices.
- MX-AOPC UA Server, MX-AOPC UA Logger, and Database can be installed either on the same computer or on different computers. We strongly recommend installing MX-AOPC UA Logger and Database on the same computer.



## Scenario 2: Collect real-time data while the network is up and running, and retrieve buffered data stored in Moxa devices when the network is disconnected

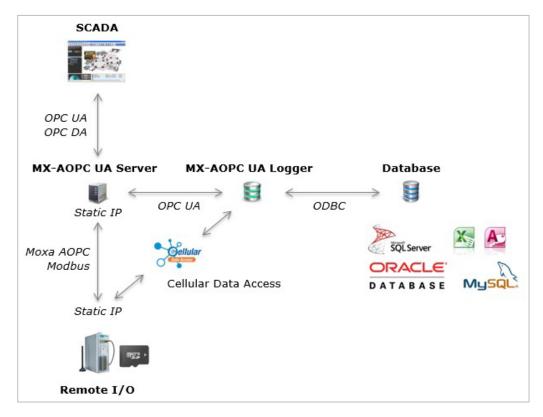
- Refer to Scenario 1 for real-time data collection.
- When network communication is reestablished, the MX-AOPC UA Logger automatically retrieves buffered data saved on microSD cards installed in Moxa's devices when the network was disconnected.
- After retrieving data from the data logs, the MX-AOPC UA Logger automatically saves the data to the database or spreadsheet.
- The MX-AOPC UA Logger supplements data only for OPC tags, which are selected both in the AOPC function
  of the Moxa device with the IOxpress utility (AOPC → Tag Selection), and in the Logger settings of the
  MX-AOPC UA Logger with its configuration console.
- For this scenario, microSD cards must be installed in your Moxa devices.
- The MX-AOPC UA Logger's data supplement function must be enabled (the default), which can be done with the configuration console under **Tools** → **Data Supplement Settings**.

If the IP address of the Moxa cellular device is private or dynamic, Cellular Data Access software must be used to enable the MX-AOPC UA Logger to access Moxa cellular devices. We recommend installing the Cellular Data Access software and MX-AOPC UA Server on the same computer. Use Moxa's IOxpress utility to enable the Cellular Data Access function on the Moxa cellular device at Network → Cellular → Cellular Data Access. Use the MX-AOPC UA Logger's configuration console at Tools → Data Supplement Settings.



When the Moxa cellular device uses a static IP

When the Moxa cellular device uses a private or dynamic IP



The following software can be downloaded from Moxa's website at <u>www.moxa.com</u>:

- MX-AOPC UA Logger v2.0 or later
- MX-AOPC UA Server v2.0 or later
- Cellular Data Access v1.2 or later
- IOxpress utility v2.1 or later
- Moxa device firmware that supports the data supplement function:
  - ioLogik 2500 series
    - ioLogik 2500-Ethernet v2.2 or later
    - ioLogik 2500-HSPA v2.2 or later
    - ioLogik 2500-WL1 v2.2 or later

Refer to the MX-AOPC UA Server User's Manual for instructions on how to install and configure Moxa's MX-AOPC UA Server software.

Refer to your Moxa device's user's manual for instructions on installing IOxpress and Cellular Data Access on a computer, and for updating your Moxa device's firmware.

## Installing the MX-AOPC UA Logger

The MX-AOPC UA Logger can be downloaded from Moxa's website at www.moxa.com.

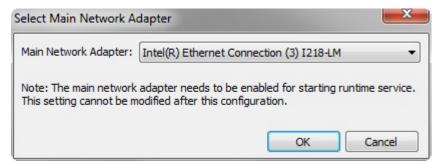
After downloading the file, unzip it and run **setup.exe**. The installation program will guide you through the MX-AOPC UA Logger installation process.

**NOTE** Microsoft .NET Framework v3.5 Service Pack 1 is required before installing MX-AOPC UA Logger. After the .NET Framework is installed, restart your computer and run setup.exe again to install MX-AOPC UA Logger.

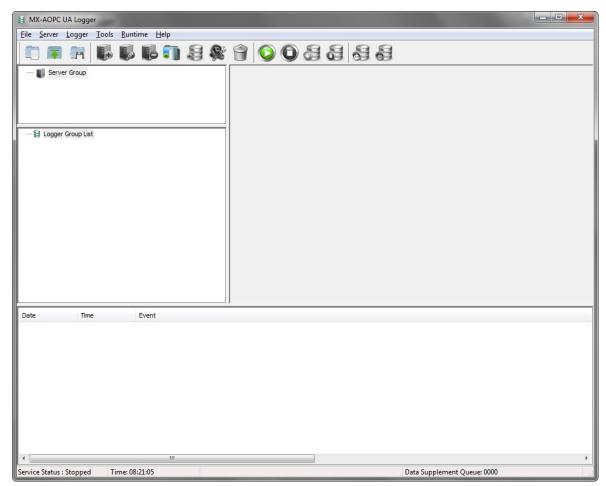
## **Opening the Configuration Console**

Open the MX-AOPC UA Logger'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 Logger.

Select the appropriate main network adapter the first time you open the configuration console.



The configuration console is an configuration tool for configuring Logger Runtime settings. When the configuration console is launched, it will automatically get the latest configurations from the Logger Runtime.



## **Configuring the MX-AOPC UA Logger Settings**

The MX-AOPC UA Logger settings described below can be configured under the Tools menu.



#### 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 exporting the system log to a text file.

### Data Supplement Settings

Select the **Data supplement after network reconnection** checkbox if the Moxa product supporting the data supplement function is connected to an MX-AOPC UA Server.

Select the **Data supplement on schedule** checkbox if the Moxa product supporting the data supplement on schedule function is connected to an MX-AOPC UA Server.

Select the **Data Supplement through Cellular Data Access** checkbox if the IP address of the Moxa cellular device is private or dynamic.

Supplement Sett	ings	
General Settings		
Retry Timeout	30	sec(s) (5 to 600, default: 30)
Retries	3	(0 to 10, default: 3)
riggering Event		
✓ Data supplement	ent after network reconnection	
Data suppleme	ent on schedule	
Everyday at	00:00	]
Data loss in t	ne past 1 dav(s) (1	to 7, default: 1)
Data suppleme	ent through Cellular Data Acces	s
IP Address	0.0.0.0	1
Port	9400	(0 to 65535, default: 9400)
older for supplen	nentary data	
Path	C: \Users\Public\Documents\M	
.og Folder for Dat	ta Supplement on Demand	
	C:\Users\Public\Documents\M	
		OK Cancel

### Certificate Management

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

Click the **Trust Servers** tab, click **Import**, and select the server's CA file to import it into the MX-AOPC UA Logger.

Server Name		URI			
👷 MX-AOPC UA Server		urn:CHARLESCHEN-N	urn:CHARLESCHEN-NB:MX-AOPC UA Server		
•			•		
Import Ex	port Remove	Trust	View Certificate		

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

View Logger Certificate	Certificate MX-AOPC UA Logger is from
Export Logger Certificate	1/9/2018 4:24:45 PM to 12/14/2022 4:24:45 PM
Reissue Certificate	

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

2-8

## **Connecting to the MX-AOPC UA Server**

### Getting the Server Endpoint from the MX-AOPC UA Server

Open the MX-AOPC UA Server configuration console and select **Tools**  $\rightarrow$  **OPC UA Settings**  $\rightarrow$  **Server Endpoint Settings** to go to the MX-AOPC UA Server configuration console to copy the MX-AOPC UA Server's Server Endpoint.

Ensure that the status of the Server Endpoint is Valid.

URL		Status
opc.tcp://192.168	. 127. 200: 53192/MXAOPC/UAServer	Valid
Network Interface:	Intel(R) Ethernet Connection (3) I21	8-LM ·
Port Number:	53192 opc.tcp://192.168.127.200:53192/M	XAOPC/UAServer

### **Connecting to MX-AOPC UA Servers**

1. Click the Server Group and then click the Discovery icon to start discovering MX-AOPC UA Servers.

MX-AOPC UA Logger	
<u>File Server Logger Tools Runtime H</u> elp	
	66
Server Group	
😝 Logger Group List	

2. Select the **Local Server** option if MX-AOPC UA Server and MX-AOPC UA Logger are installed on the same computer. Otherwise, select the **Remote Server Endpoint** option and paste in the Server Endpoint from the previous step. Type in the MX-AOPC UA Server's password and then click **Next**.

Discovery S	ŝerver 📒	x
O	Local Server	
۲	Remote Server Endpoint	
	opc.tcp://192.168.127.200:53192/MXAOPC/UAServer	
	Password ••••	
		_
S	< Back Next > Cancel	

 Modify Server Name, and configure Security Policy and Security Mode, which should be the same as the MX-AOPC UA Server's UA Settings. If necessary, change the Publish Interval, Sampling Interval, Queue Size settings, and select or deselect the Discard Oldest settings checkbox, and then click Finish.

Server Name	Server 1	(max. length = 30; "." is not allowed
Server Endpoint:	opc.tcp://192.1	68.127.200:53192/MXAOPC/UAServer
Security Policy	None	•
Security Mode	None	•
Subscription Settin	ngs	
P <mark>ublish Int</mark> erva	I 1000	ms (0 to 86400000, default: 1000)
Keep Alive Count	10	
Lifetime Count	1000	
Monitored Item Se	ettings	
Sampling Interva	500	ms (-1 to 86400000, default: 500)
Queue Size	e 10	(0 to 10000, default: 10)
Discard Oldest	t 🔽	

4. Select the server and click the **Connect** icon to connect to the MX-AOPC UA Server.

MX-AOPC UA Logger		The Proof	- • ×
<u>File Server Logger Tools Runtime H</u> elp			
0 🖬 🖷 🔀 😺 🔂 🕄 🛠		8	
🖃 🔰 Server Group			
Server 1(192.168.127.200:53192)	Server Endpoint: opc.tcp://192.168.127	7.200:53192/MXAOPC/UAServer	
	Security Policy: None		
	Security Mode: None		
E- San Logger Group List	Subscription Settings	Monitored Item Settings	
	Publish Interval: 1000 ms	Sampling Interval: 500 ms	
	Keep Alive Count: 10	Queue Size: 10	
	Lifetime Count: 1000	Discard Oldest: Yes	

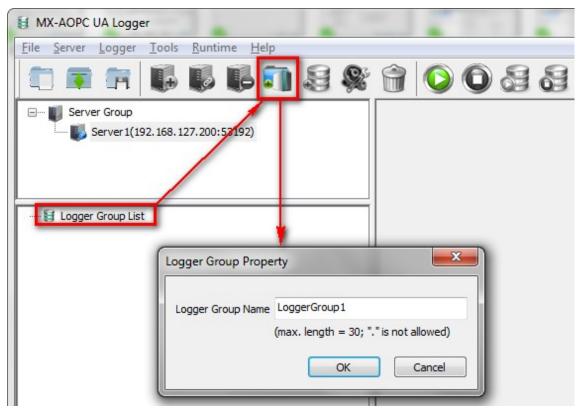
 Once the server is connected, you will not be allowed to change the server connection settings. To change the server connection settings, click the **Disconnect** icon to disconnect the MX-AOPC UA Server, and then click the **Properties** icon to change the server connection settings.

MX-AOPC UA Logger		
ile <u>S</u> erver <u>L</u> ogger <u>T</u> ools <u>R</u> untime <u>H</u> elp	- 1	
i 🖬 🖬 🗳 🗳 🔂 🖓 🖓		8
🖃 🗤 🕼 Server Group		
퉳 Server 1 (192. 168. 127. 200: 53192)	Server Endpoint: opc.tcp://192.168.127.	200:53192/MXAOPC/UAServer
	Security Policy: None	
	Security Mode: None	
∃… 😝 Logger Group List		
🕞 LoggerGroup1	Subscription Settings	Monitored Item Settings
	Publish Interval: 1000 ms	Sampling Interval: 500 ms
	Keep Alive Count: 10	Queue Size: 10
	Lifetime Count: 1000	Discard Oldest: Yes
ile <u>S</u> erver Logger <u>T</u> ools <u>R</u> untime <u>H</u> elp		
ile <u>S</u> erver Logger Iools <u>R</u> untime <u>H</u> elp	600333	
ile <u>S</u> erver Logger Iools <u>R</u> untime <u>H</u> elp		
ile Server Logger Iools Runtime Help	Server Endpoint: opc.tcp://192.168.127.	9
ile Server Logger Iools Runtime Help	Server Endpoint: opc.tcp://192.168.127. Security Policy: None	9
ile Server Logger Iools <u>R</u> untime <u>H</u> elp	Server Endpoint: opc.tcp://192.168.127.	9
E 🔰 Server Group	Server Endpoint: opc.tcp://192.168.127. Security Policy: None	9
ile Server Logger Iools Runtime Help	Server Endpoint: opc.tcp://192.168.127. Security Policy: None Security Mode: None	200:53192/MXAOPC/UAServer
ile Server Loos Runtime Help	Server Endpoint: opc.tcp://192.168.127. Security Policy: None Security Mode: None Subscription Settings	200:53192/MXAOPC/UAServer Monitored Item Settings

**NOTE** Ensure that the server connection is in connecting status before starting to record data to a database or spreadsheet.

## **Creating Loggers**

1. To create a data Logger, click Logger Group List, click the New Logger Group icon, and then type in the name of the logger group.



2. Click the logger group, and then click the **New Logger** icon to create a logger.

3. Type in the name of the logger, select **Excel File**, **Access File**, **Database**, or **Azure IoT**, and then modify the root path. Set the source name of the database, or type in the Connection String. Click **Next** to continue.

MX-AOPC UA	A <mark>Logger</mark> .ogger <u>T</u> ools <u>F</u>	<u>l</u> untime <u>H</u> e	p	the det	atiese, or typ	e in the Conne	etton Stray
<b>1</b>	R B I		1 2 8	<b>a</b>   🕥	022	<b>3</b> 8	
I I Server I	Group rver 1 (192. 168. 127	.200:53192)		Logger Name	Туре	Output	
😝 Loager G			gger Settings		nly 20 if using Oracle Da	tabase)	
			<ul> <li>Excel File:</li> <li>Root Path:</li> <li>File separate</li> <li>Access File:</li> <li>Root Path:</li> </ul>	d every 60	▼ min.(default:	WXAOPCLogger Logger 60)	
ate	Time	Ever	<ul> <li>Database:</li> <li>Source Name</li> <li>Azure IoT:</li> <li>Connection S</li> </ul>	:			Setting
018/01/24	08:49:15	Conr				< Back Next >	Cancel

4. If necessary, modify the name and order of Table Fields. Add <DATA\_TYPE>, <SERVER\_UTC\_TIMESTAMP>, etc., if they are required to be recorded into the database or spreadsheet, and then click **Finish**.

D	)ata Field	*Table Field	Data Type	^
<	<unit></unit>	<unit></unit>	String	
<	SOURCE_UTC_TIMESTA	<source_utc_timesta< td=""><td>**String</td><td></td></source_utc_timesta<>	**String	
<	SOURCE_TIMEZONE>	<source_timezone></source_timezone>	Float	
<	DATA_TYPE>			=
<	SERVER_UTC_TIMESTA			-
<	<server_timezone></server_timezone>			
<	QUALITY>			
optic	on: DateTime or String			

5. Click the Refresh button to get the latest MX-AOPC UA Server OPC tags.

MX-AOPC UA Logger	and includes a little of the l	
<u>File Server Logger Tools Runtime Help</u>		
🗆 🖛 🖬 🖉 🖗 🗊 S 🛠	🔒 🔕 🖓 🎘 🎘 🍣 🖉	
Server Group  Server 1(192.168.127.200:53192)   Cogger Group List  Cogger Group 1  Cogger 1		ed Tags
	Server Name Tag Name De Property Type: Excel	scription
	Output: C:{Users\Public\Documents\Moxa\MXAOPCLogger\Logge Table: Logger1	\Logger1_20180124_005331
	Data Field Table Field	Data Type Order
	<tag_id> <tag_id> <value> <value> <unit> <unit> <source_utc_timestamp> <source_utc_timestamp> <source_timezone> <source_timezone></source_timezone></source_timezone></source_utc_timestamp></source_utc_timestamp></unit></unit></value></value></tag_id></tag_id>	String     1       String     2       String     3       MP>     DateTime       Float     5

6. Click the appropriate arrow buttons to add items to or remove items from the Selected Tags list.

MX-AOPC UA Logger			
<u>File Server Logger Tools Runtime H</u> elp			
• • • • • • • • • • • • •			
Group Server Group Server 1(192.168.127.200:53192)	Recording           Start         Stop           Automatically start recording when service starts	srunning	· · · · · · · · · · · · · · · · · · ·
	Tag Selection		
Gogger Group List     GoggerGroup1     Gogger1	Server 1  Available Tags	Selected Tags	
	Tag Name	Tag Name           \$\$\formal{2}\$ 2542-01.AI-00           \$\$\formal{2}\$ 2542-01.AI-01           \$\$\formal{2}\$ 2542-01.AI-02           \$\$\$\formal{2}\$ 2542-01.AI-02           \$	× III
	4 III +	% 2542-01.DIO-00	-
	Server Name Tag Name	Description	<u> </u>
	Server1 🧐 2542-01.AI-00	Desc	
	Server 1 🧐 2542-01.AI-01	Desc	E
	Server1 🧐 2542-01.AI-02	Desc	
	Server 1 🧐 2542-01.AI-03	Desc	<b>T</b>

## **Starting Runtime Service**

After connecting the MX-AOPC UA Server and creating the Logger, click the **Start Runtime Service** icon to start running the MX-AOPC UA Logger service.



A green light next to the logger name indicates that the logger is ready to record.

MX-AOPC UA Logger		
<u>File Server Logger Tools Runtime H</u> elp		
		3
Image: Server Group         Image: Server 1(192.168.127.200:53192)	Recording Start Stop Automatically start recording when servi Tag Selection Available Tags Tag Name	ice starts running
	Server Name Tag Name	Description
	Server 1 🧐 2542-01.AI-00 Server 1 🧐 2542-01.AI-01	Desc E
	Server 1 9 2542-01.AI-01	Desc
	Server1 🧐 2542-01.AI-03	Desc 👻

A yellow light next to the logger name indicates that the logger setting is not correct. Check the settings of the logger, and then confirm the database or spreadsheet settings again.

MX-AOPC UA Logger	
Eile Server Logger Iools Runtime Help	
Server Group     Server 1(192.168.127.200:53192)	Recording       Start       Start       Automatically start recording when service starts running       Tag Selection
E- E Logger Group List	Available Tags  Available Tags  Tag Name  Tag Name
	Server Name Tag Name Description

You will not be allowed to modify the server connection and logger settings when runtime service is running. To stop runtime service, click the **Stop Runtime Service** icon.

MX-AOPC UA Logger				
<u>File Server Logger Tools R</u> untime <u>H</u> elp				
		8888	l	
Server Group     Server 1(192.168.127.200:53192)	Recording Start	Stop y start recording when service st	tarts running	· · · · · · · · · · · · · · · · · · ·
	Tag Selection			
E-Si Logger Group List E-Si Logger Group 1 Logger 1	Available Tags Tag Name	•	Selected Tags Tag Name Tag Name	
	Server Name Server 1	Tag Name	Description Desc	
	Server1 Server1 Server1	<ul> <li>2542-01.AI-01</li> <li>2542-01.AI-02</li> <li>2542-01.AI-03</li> </ul>	Desc Desc Desc	Ŧ

- **NOTE** Configuration changes will be updated to Logger's runtime service after the runtime service is started. If the runtime service is not started, any change will be discarded when the configuration console is closed. Be sure to save your project file when you close the configuration console.
- **NOTE** Stopping Runtime Service will stop both the logger recording and data supplement functions, which may cause data loss.

## **Starting Recording**

To start recording data, click the logger icon and then click the **Start Recording** icon to start recording the selected tags into the database or spreadsheet.

MX-AOPC UA Logger				
<u>File Server Logger Tools R</u> untime <u>H</u> elp				
	$\bigcirc$	3336	3	
E── ● Server Group     Ever 1(192, 168, 127, 200:53192)     Rec	Start	Stop		-
		y start recording when servi	ce starts running	
Тад	Selection			
🖃 🖷 😝 Logger Group List		•	- C	
E- LoggerGroup1	Available Tags		Selected Tags	
S Logger 1	Tag Name		Tag Name	
	Server Name	Tag Name	Description	<u> </u>
	Server 1	🧐 2542-01.AI-00	Desc	
	Server1	🧐 2542-01.AI-01	Desc	E
	Server 1	🧐 2542-01.AI-02	Desc	
	Server1	🧐 2542-01.AI-03	Desc	-

A red light next to the logger indicates that the logger is recording.

MX-AOPC UA Logger				- <b>• ×</b>
<u>File Server Logger Tools Runtime H</u> elp				
		a 🗿 👌	8	
□ ■ Server Group	Recording Start	Stop	vice starts running	•
	Tag Selection			
E-S Logger Group List	Available Tags		Selected Tags	
Logger1	Tag Name		Tag Name	
	Server Name	Tag Name	Description	<u>^</u>
	Server1	🧐 2542-01.AI-00	Desc	
	Server1 Server1	2542-01.AI-01 2542-01.AI-02	Desc	-
	Server1	<ul> <li>2542-01.AI-02</li> <li>2542-01.AI-03</li> </ul>	Desc	-

Click the folder icon to check if data is being recorded into the target spreadsheet.

MX-AOPC UA Logger		
<u>File Server Logger Tools Runtime H</u> elp		
	0 0 2 5 5 2	
Server 1(192.168.127.200:53192)	rding Start Stop Automatically start recording when service starts running Selection	
E-S Logger Group List		
🗄 📲 LoggerGroup1		ed Tags
Logger 1	Tag Name Tag	Name
	Server Name Tag Name De	scription
	Server1 🥎 2542-01.AI-00 De	sc
	Server1 🥸 2542-01.AI-01 De	
	Server 1 🧐 2542-01.AI-02 De	
	Server1 🗞 2542-01.AI-03 De	sc 👻
	erty Type: Excel Jutput: C:\Users\Public\Documents\Moxa\MXAOPCLogger\Logger Table: Logger1	/Logger1_20180124_005331

- **NOTE** Be sure to close the target spreadsheet listed in the target root path before starting to record. If the target spreadsheet is open, the MX-AOPC UA Logger will not be able to record data to the target file.
- **NOTE** DO NOT open the spreadsheet while recording is under way. Doing so will cause the spreadsheet file to become corrupted because it is in use by the MX-AOPC UA Logger service. To open the spreadsheet, stop the MX-AOPC UA Logger's runtime service and then click the folder icon to access the file.

## **Testing the Data Supplement Function**

Take the following steps to test the data supplement function.

- 1. Insert a microSD card into your Moxa device.
- 2. Use IOxpress to configure the Moxa device to allocate data buffer size for network failure and to enable connection to the MX-AOPC UA Server.

Settings	Click&Go Plus	Click&Go Plus Simulator		Peer-to-Peer	
System  Security  Network  Security		AOPC Server with heartbea	at interva	l 30 sec(	s)
	Server Mode				
Server Connection	Single Server			1st AOPC Server	192 . 168 . 127 . 200
Modbus/TCP Slave	Dual Servers			2nd AOPC Server	0.0.0.0
⊞ Modbus/TCP Master     B ≧ Serial Port	Failover			Port	9900
<ul> <li>Data Logging</li> <li>Profile</li> </ul>	Retry Times	3			
<ul> <li>☐ FTP</li> <li>① Click&amp;Go Plus</li> </ul>	Retry Interval	3	sec(s)		
	page.	lata buffer can store up to 2 for recording tags in the da			enable this function on the "Data Logging > Prof

Settings	Click&Go Plus	Click&Go Plus Simulator	Peer-to-Peer	
System Security Security I Network I I/O		for network failures (requires 2 GE		
AOPC     Server Connection     Tag Selection     SNMP     Modbus/TCP Slave     Modbus/TCP Master     Serial Port     Data Logging	No. Profile Name	e Storage Max. Records	s Records per File	
Errofile	Profile Settings Name Maximum 512 (Note: Maximum re	x 10,000 records		s (1 to 65; default: 1)

3. Select the checkboxes of the tags associated with the data you would like the MX-AOPC UA Server to update.

Settings	Click&Go Pl	us	Click&Go Plus Simulator	Per	er-to-Peer	
<ul> <li>         Bystem B          Becurity         </li> </ul>	Select Modu	le All		•	Select All Unselect	Apply to All
	I/O Type	AI		•		
	Slot N	o.	Channel No.	Name	Description	On Change
Server Connection	Slot (	0 Model: 2542	] 0	AI-00	Desc	Disabled
SNMP	Slot (	00 Model: 2542	] 1	AI-01	Desc	Disabled
Modbus/TCP Slave	Slot (	00 Model: 2542	] 2	AI-02	Desc	Disabled
Modbus/TCP Master	Slot (	00 Model: 2542	] 3	AI-03	Desc	Disabled
🕀 🗎 Serial Port						

4. If the cellular device's SIM card uses a private or dynamic IP address, enable the Cellular Data Access function. If the SIM card is using a public IP address, continue with step 5.

Setting	Click&Go Plus	Click&Go Plus S	Click&Go Plus Simulator Peer-to-Peer			
System	General	VPN	Reconnect	on Port Forwarding	DDNS	Cellular Data Access
<ul> <li>Network</li> <li>General</li> <li>LAN</li> </ul>	Enable Cellul	ar Data Access				
Cellular I/O	IP Address	192 . 168 . 1	2 . 112			
SNMP	Port	9401				
<ul> <li>➡ Borc</li> <li>➡ Serial Port</li> <li>➡ ➡ Data Logging</li> </ul>	Unique ID	0				
	Heartbeat	30				

5. Update the device's configuration.

₩ Moxa IOxpress - C:\Users\Public\Docume	nts\Moxa\IOx	press\Database\IOxpr	ess.prj				
Project Device Configuration Options	Help						
🗖 📼 🖷 🚳 🔮							
Device Library 2542-01 - 192.168.127.253	Dep	oyment					
Martin and Participation and State an State and State	Update Co	nfiguration to Device	•				
	Overwr	ite Network Setting					
	All		<ul> <li>Apply</li> </ul>	r to All			
	No.	Device Name	Model Name	(Cellular) IP Address	CDA IP Address	MAC Address	Configuration
	0	2542-01	2542	192.168.127.253	-	00-90-E8-5A-21-6E	2542-01

6. Conduct **Set Device Date & Time** on the device to ensure that the device, MX-AOPC UA Server, and MX-AOPC UA Logger are time synchronized.

😽 Moxa IOxpress - C:\Users\Public\Documer	nts\Moxa\IOx	press\Database\IOxpress.prj			•	
Project Device Configuration Options	Help					
🔲 🖬 🗃 📓 🚔 🧕						
Device Library	Depl	oyment				
2542-01 - 192.168.127.253						
	Set Device	Date & Time	•			
	Sync	with PC 💿 Manual Setting	Date: 2018	3/ 1/24 🔲 👻 Time: 12	2:30:28 👙 (UTC:)	
	All		<ul> <li>Apply</li> </ul>	to All		
	□ No.	Device Name	Model Name	(Cellular) IP Address	CDA IP Address	MAC Address
	0	2542-01	2542	192.168.127.253	-	00-90-E8-5A-21-6E

 If Cellular Data Access software is required, enable the MX-AOPC UA Logger's Data supplement through Cellular Data Access option at Tools → Data Supplement Settings. If Cellular Data Access software is not required, continue with step 8.

	ings	
General Settings		1
Retry Timeout	30	sec(s) (5 to 600, default: 30)
Retries	3	(0 to 10, default: 3)
Triggering Event		
🔽 Data suppleme	nt after network reconnecti	ion
Data suppleme	nt on schedule	
Everyday at	00:00	A V
Data loss in th	e pact 1 day(s)	(1 to 7, default: 1)
Data 1055 IT a		
🔽 Data suppleme	nt through Cellular Data Ac	cess
IP Address	0.0.0.0	
1 71001 000	-	,
Port	-	(0 to 65535, default: 9400)
Port	9400	
	9400 nentary data	(0 to 65535, default: 9400)
Port	9400	(0 to 65535, default: 9400)
Port Folder for supplem Path	9400 nentary data C:\Users\Public\Document	(0 to 65535, default: 9400)
Port Folder for supplem Path	9400 nentary data C:\Users\Public\Document a Supplement on Demand	(0 to 65535, default: 9400)
Port Folder for supplem Path	9400 nentary data C:\Users\Public\Document	(0 to 65535, default: 9400)

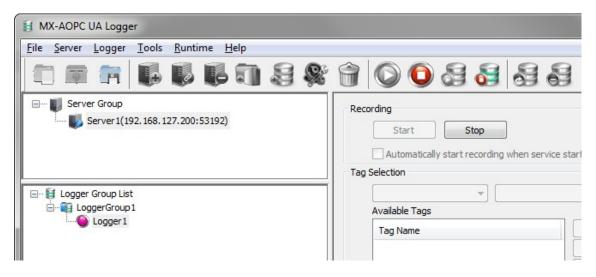
8. Ensure that the logger is in recording mode.

MX-AOPC UA Logger	State of the local division in the local division in the local division of the local div	
<u>File Server Logger Tools Runtime Help</u>		
	1 0 0 3 3 8	
□- ■ Server Group □- ■ Server 1(192.168.127.200:53192)	Recording Start Stop Automatically start recording when service Tag Selection	e starts running
🖃 📲 Logger Group List	· · · · · · · · · · · · · · · · · · ·	
LoggerGroup1	Available Tags	Selected Tags
Logger1	Tag Name	Tag Name
	Server Name Tag Name	Description
	Server1 🥸 2542-01.AI-00	Desc
	Server1 🧐 2542-01.AI-01	Desc
	Server 1 🧐 2542-01.AI-02	Desc
	Server1 🧐 2542-01.AI-03	Desc 👻

9. Disconnect the Ethernet connection between the Moxa device and the MX-AOPC UA Server. Wait longer than the heartbeat interval (the ioLogik 2500's default heartbeat interval is 30 sec.) plus the heartbeat tolerance (the MX-AOPC UA Server's default heartbeat tolerance is 30 sec.), and then check if the tag status is "Disconnected" on the MX-AOPC UA Viewer. If it is disconnected, wait longer than the update interval of the tags, and then reconnect the connection between the Moxa device and MX-AOPC UA Server.

ile Tools H	elp										
🗏 👍 Active De		Tag Name	Description	Data Type	Value	Device timestamp (UTC)	Time Zone	UTC+T.Z.	Access Rights	Quality	Update Count
	-01 (00:90:e8:5a:21:6e) 2-01 (00:90:e8:21:b7:91)	% 2542-01.AI-00	Desc	Float	0.000	05:54:08.000 2018/01/24	UTC+8	13:54:08.000 2018/01/24	Read-only	Disconnected	2
	2-01 (00:90:68:21:07:91) Device Group List	🧐 2542-01.AI-01	Desc	Float	0.001	05:54:08.000 2018/01/24	UTC+8	13:54:08.000 2018/01/24	Read-only	Disconnected	2
B Roubus L		🥸 2542-01.AI-02	Desc	Float	0.000	05:54:08.000 2018/01/24	UTC+8	13:54:08.000 2018/01/24	Read-only	Disconnected	2
- D D		🧐 2542-01.AI-03	Desc	Float	0.026	05:54:08.000 2018/01/24	UTC+8	13:54:08.000 2018/01/24	Read-only	Disconnected	2
	TagGroup1	🥸 2542-01.DIO-00	Desc	Boolean	0	05:51:08.000 2018/01/24	UTC+8	13:51:08.000 2018/01/24	Read-only	Disconnected	2
		9 2542-01.DIO-01	Desc	Boolean	0	05:51:08.000 2018/01/24	UTC+8	13:51:08.000 2018/01/24	Read-only	Disconnected	2
		% 2542-01.DIO-02	Desc	Boolean	0	05:51:08.000 2018/01/24	UTC+8	13:51:08.000 2018/01/24	Read-only	Disconnected	2
		% 2542-01.DIO-03	Desc	Boolean	0	05:51:08.000 2018/01/24	UTC+8	13:51:08.000 2018/01/24	Read-only	Disconnected	2
		9 2542-01.DIO-04	Desc	Boolean	0	05:51:08.000 2018/01/24	UTC+8	13:51:08.000 2018/01/24	Read-only	Disconnected	2
		% 2542-01.DIO-05	Desc	Boolean	0	05:51:08.000 2018/01/24	UTC+8	13:51:08.000 2018/01/24	Read-only	Disconnected	2
		9 2542-01.DIO-06	Desc	Boolean	0	05:51:08.000 2018/01/24	UTC+8	13:51:08.000 2018/01/24	Read-only	Disconnected	2
		9 2542-01.DIO-07	Desc	Boolean	0	05:51:08.000 2018/01/24	UTC+8	13:51:08.000 2018/01/24	Read-only	Disconnected	2
		9 2542-01.DIO-08	Desc	Boolean	0	05:51:08.000 2018/01/24	UTC+8	13:51:08.000 2018/01/24	Read-only	Disconnected	2
		9 2542-01.DIO-09	Desc	Boolean	0	05:51:08.000 2018/01/24	UTC+8	13:51:08.000 2018/01/24	Read-only	Disconnected	2
		1 2542-01.DIO-10	Desc	Boolean	0	05:51:08.000 2018/01/24	UTC+8	13:51:08.000 2018/01/24	Read-only	Disconnected	2
		9 2542-01.DIO-11	Desc	Boolean	0	05:51:08.000 2018/01/24	UTC+8	13:51:08.000 2018/01/24	Read-only	Disconnected	2
		1 2542-01.SysConn	System Con	Boolean	0	05:54:58.818 2018/01/24	UTC+8	13:54:58.818 2018/01/24	Read-only	Good	2
		1 2542-01.SysIPAd	Device IP Ad	String	192.16	05:54:58.818 2018/01/24	UTC+8	13:54:58.818 2018/01/24	Read-only	Disconnected	2
		🧐 2542-01.SysMAC	Device MAC	String	00:90:E	05:54:58.818 2018/01/24	UTC+8	13:54:58.818 2018/01/24	Read-only	Disconnected	2
ate	Time E	vent									
018/01/24	13:56:20 T	he tag DeviceGroup1.Device	1.TagGroup 1.Tag	1 changes the q	uality from Bad	to Disconnected					
2018/01/24	13:54:59 T	he tag 2542-01.SysConnect-	00 changes the v	alue from 1 to 0							
018/01/24		he tag 2542-01.SysIPAddres				i					
018/01/24		he tag 2542-01.SysMAC cha									
018/01/24	13:54:59 T	he tag 2542-01.AI-03 chang	es the quality from	m Good to Discor	nected						
018/01/24	13:54:59 T	he tag 2542-01.AI-02 chang	es the quality from	m Good to Discor	nected						
018/01/24		he tag 2542-01.AI-01 chang									
018/01/24	13:54:59 T	he tag 2542-01.AI-00 chang	es the quality from	m Good to Discor	nected						
018/01/24	13:54:59 T	he tag 2542-01.DIO-11 char	iges the quality fr	om Good to Disc	onnected						
018/01/24	13:54:59 T	he tag 2542-01.DIO-10 char	iges the quality fr	om Good to Disc	onnected						
018/01/24	13:54:59 T	he tan 2542-01.DIO-09 char	ines the quality fr	om Good to Disc	onnected		_				

10. The pink and gray flashing light indicates that the logger is performing the data supplement process.



11. After the data supplement process is complete, the light will change to red. The event log will show how long the data supplement process took to perform, and the result of the supplement process.

HX-AOPC UA Logger			
<u>File Server Logger Tools Runtime H</u> elp			
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	9	
□- ■ Server Group Server 1(192.168.127.200:53192)	Recording Start Stop Automatically start recording when servic Tag Selection	ce starts running	
	Tag Selection		
🖃 📲 Logger Group List		- C	E
E-E LoggerGroup 1	Available Tags	Selected Tags	
Logger 1	Tag Name	Tag Name	
	Server Name         Tag Name           Server 1         % 2542-01.AI-00           Server 1         % 2542-01.AI-01           Server 1         % 2542-01.AI-01           Server 1         % 2542-01.AI-02           Server 1         % 2542-01.AI-03	Description Desc Desc Desc Desc Desc	
Date Time Event			•
2018/01/24 13:59:44 Data supplement (Auto) end.			E
2018/01/24 13:59:44 Finished retrieving log [from 20	18/01/24 05:54:58 to 2018/01/24 05:58:41] from the	device [MAC:00-90-e8-5a-21-6e].	-
2018/01/24 13:59:42 Retrieving log 1/1 [from 2018/0	01/24 05:54:58 to 2018/01/24 05:58:41] from the devi	ce [MAC:00-90-e8-5a-21-6e]	
2018/01/24 13:59:42 Connecting to the device [MAC	:00-90-e8-5a-21-6e] for retrieving log from 2018/01/2-	4 05:54:58 to 2018/01/24 05:58:41	
2018/01/24 13:58:44 Trying to connect to the device			
2018/01/24 13:58:44 Data supplement (Auto) begin.			
2018/01/24 13:52:02 Data supplement (Auto) end.			
2018/01/24 13:52:02 Finished retrieving log [from 20	18/01/24 05:02:33 to 2018/01/24 05:50:58] from the	device [MAC:00-90-e8-5a-21-6e].	
2018/01/24 13:52:00 Retrieving log 1/1 [from 2018/0	01/24 05:02:33 to 2018/01/24 05:50:58] from the devi	ce [MAC:00-90-e8-5a-21-6e]	-
			•
Service Status : Running Time: 14:00:04		Data Supplement Queue: 0000	

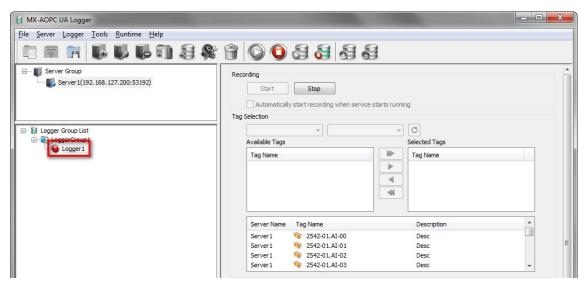
12. Open the database folder and note which files the supplementary data has been saved to.

🕒 🗢 😺 ເomputer ເ€ Wi	indows7_OS (C:) → Users → Public → Documents → Moxa	► MXAOPCLogger ► Da	ataComplement 🕨 00	-90-e8-5a-21-6
Organize 👻 🔀 Open 👻	Share with 🔻 Print New folder			
🔆 Favorites	Name	Date modified	Туре	Size
🕮 Recent Places	2018-01-24-04-50-08_2018-01-24-05-52-08.csv	2018/1/24 下午 01:	Microsoft Excel C	59 KB
🗼 Downloads	2018-01-24-04-50-08_2018-01-24-05-59-48.csv	2018/1/24 下午 01:	Microsoft Excel C	66 KB
😻 Dropbox	2018-01-24-04-50-08_2018-01-24-06-45-58.csv	2018/1/24 下午 02:	Microsoft Excel C	109 KB

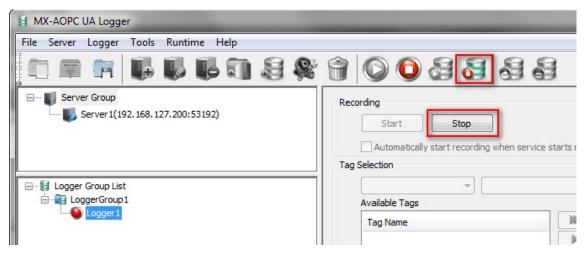
# Testing the Data Supplement on Demand Function

Take the following steps to test the data on demand function.

1. Ensure the logger is in recording mode.



2. Click the Stop Recording button to stop recording data, and then wait.



3. Click **Logger Group List** and then click the **Data Supplement on Demand** button. The default on-demand period is one day in the past.

🚺 MX-AOPC UA Logger		
<u>File Server Logger T</u> ools <u>R</u> untime <u>H</u> elp		
	1 & A Q A A A A	
- ■ Server Group - ■ Server 1(192.168.127.200:53192)		
	Data Supplement on Demand	
Logger 1	Start Date: 1/23/2018 V Start Time (UTC): 7:36:35 AM 🛣 Current Time (UTC): 2018/01/24 07:36:51	
	End Date: 1/24/2018   End Time (UTC): 7:36:35 AM  Retrieve Close	
	Log Folder: C:\Users\Public\Documents\Moxa\MXAOPCLogger\Logger_on_Demand	
	Timeout: 30 sec(s); Retries: 3 time(s)	
1 1	Start Date Start Time End Date End Time Result	
Date Time Event		
2018/01/24 15:34:31 Stop recording logger		
<		
Service Status : Running Time: 15:36:51	Data Supplement Queue: 0000	al

4. Click the **Retrieve** button to start retrieving lost data in the defined period. The pink and gray flashing light indicates that the logger is performing the data supplement process.

MX-AOPC UA	Logger		10, 10 may 1	an e la serie la					23
<u>File Server L</u>	ogger <u>T</u> ools <u>R</u> i	untime <u>H</u> elp							
	a G I		8 🕸 🕯	$\bigcirc \bigcirc \bigcirc$	3 6 6	8			
- Server	Group rver 1(192, 168, 127, 2	200:53192)							
		Data Supplement	on Demand					)	
😝 Logger G		Start Date: 1	/23/2018 👻	Start Time (UTC):	7:14:51 AM 🛓	Current Time (UTC 2018/01/24 07:17			
	ogger 1	End Date: 1	/24/2018 👻	End Time (UTC):	7:14:51 AM 🚔	Retrieve	Close		
_	_	Log Folder: C:	Users Public Docum	nents\Moxa\MXAOPC	Logger\Logger_on_[	Demand			
		Timeout: 30 sec(s)	; Retries: 3 time(s)						
		Start Date	Start Time	End Date	End Time	Result			
		2018/01/23	07:14:51	2018/01/24	07:14:51	Retrieving			
Date	Time	1						-	_
2018/01/24	15:17:35								
2018/01/24	15:17:18								
2018/01/24	15:17:03							20180124_005331\Logger1_20	1801
2018/01/24	15:17:02	Loggeroroophicoge			roy done pocomerco			20180124_005331\Logger1_20	
2018/01/24	15:17:01	Retrieving log 1/3	from 2018/01/23 07	:14:51 to 2018/01/2	4 04:27:37] from the	device [MAC:00-9			
2018/01/24	15:17:01							20180124 005331\Logger1 20	1801
2018/01/24	15:17:01		and the second	e8-5a-21-6e] for retr					220220
2018/01/24	15:17:01	Trying to connect to			,		,		
2018/01/24	15:17:01	Data supplement (D							
•				i i i i i i i i i i i i i i i i i i i					P

5. Once the retrieving process is finished, the **Result** column will show **Complete**.

Start Date:	1/23/2018	•	Start Time (UTC):	7:18:17 AM 🌲	Current Time (UTC): 2018/01/24 07:18:20
End Date:	1/24/2018	•	End Time (UTC):	7:18:17 AM 🚔	Retrieve Close
Log Folder:	C:\Users\Pub	lic \Docu	uments\Moxa\MXAOPC	Logger\Logger_on_	Demand
imeout: 30 se	c(s); Retries:	3 time(s	;)		
Start Date	Start 1	īme 🛛	End Date	End Time	Result
2018/01/23	07:14:	51	2018/01/24	07:14:51	Complete

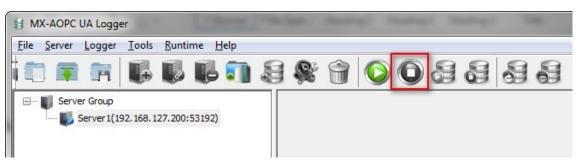
6. To check detailed information, see the Log View at the bottom of the screen.

MX-AOPC U	A Logger	
<u>File</u> Server L	ogger <u>T</u> ools	Buntime <u>H</u> elp
		i i i i i i i i i i i i i i i i i i i
E V Server		
¥i Logger G		
Date	Time	Event
2018/01/24	15:18:07	Data supplement (Demand) end.
2018/01/24	15:18:06	Finished retrieving log [from 2018/01/24 06:45:59 to 2018/01/24 07:14:50] from the device [MAC:00-90-e8-5a-21-6e].
2018/01/24	15:18:05	LoggerGroup 1.Logger 1: supplement data is saved to C: Users \Public \Documents \Moxa \MXAOPCLogger \Logger \Logger 1_20180124_005331 \Logger 1_201801
2018/01/24	15:17:53	Retrieving log 1/1 [from 2018/01/24 06:45:59 to 2018/01/24 07:14:50] from the device [MAC:00-90-e8-5a-21-6e]
2018/01/24	15:17:52	Connecting to the device [MAC:00-90-e8-5a-21-6e] for retrieving log from 2018/01/24 06:45:59 to 2018/01/24 07:14:50
2018/01/24	15:17:52	No data found [from 2018/01/23 07:14:51 to 2018/01/24 04:27:37] from the device [MAC:00-90-e8-5a-21-6e] for supplement.
2018/01/24	15:17:35	Retrieving log 3/3 [from 2018/01/23 07:14:51 to 2018/01/24 04:27:37] from the device [MAC:00-90-e8-5a-21-6e]
2018/01/24	15:17:18	Retrieving log 2/3 [from 2018/01/23 07:14:51 to 2018/01/24 04:27:37] from the device [MAC:00-90-e8-5a-21-6e]
2018/01/24	15:17:03	LoggerGroup 1. Logger 1: supplement data is saved to C: \Users\Public\Documents\Moxa\MXAOPCLogger\Logger\Logger1_20180124_005331\Logger1_201801
2018/01/24	15:17:02	LoggerGroup1.Logger1: supplement data is saved to C:\Users\Public\Documents\Moxa\MXAOPCLogger\Logger\Logger1_20180124_005331\Logger1_201801
2018/01/24	15:17:01	Retrieving log 1/3 [from 2018/01/23 07:14:51 to 2018/01/24 04:27:37] from the device [MAC:00-90-e8-5a-21-6e]
2018/01/24	15:17:01	LoggerGroup1.Logger1: supplement data is saved to C:\Users\Public\Documents\Moxa\MXAOPCLogger\Logger\Logger1_20180124_005331\Logger1_201801
2018/01/24	15:17:01	Connecting to the device [MAC:00-90-e8-5a-21-6e] for retrieving log from 2018/01/23 07:14:51 to 2018/01/24 04:27:37
2018/01/24	15:17:01	Trying to connect to the device.
2018/01/24	15:17:01	Data supplement (Demand) begin.
•		
Service Status : R	lunning Tim	e: 15:19:34 Data Supplement Queue: 0000

# Testing the Data Supplement on Schedule Function

Take the following steps to test the data on demand function.

1. Ensure that the runtime service is NOT in run mode.



2. Click Tools → Data Supplement Settings.

<u>File</u> <u>Server</u> Logger <u>To</u>	ools <u>R</u> untime <u>H</u> elp		-	1
i 💼 📻 📠 🗀	Data Supplement Settings Certificate Management			
Server Group				
	System Log	+		
	Change Password			
	Options			
Logger Group List				

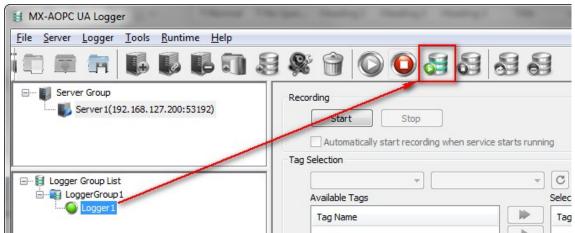
3. Enable the **Data supplement on schedule** function, set the time (UTC Time) to a few minutes later and data loss in the past to 1 day.

General Settings		
Retry Timeout	30	sec(s) (5 to 600, default: 30)
Retries	3	(0 to 10, default: 3)
riggering Event		
🗸 Data suppleme	ent after network reconnectior	
🗸 Data suppleme	ent on schedule	
Everyday at	18:15	(UTC time)
Everyday at		
Data loss in th	ne past 1 day(s) (1	1 to 7, default: 1)
	ne past 1 day(s) (	1 to 7, default: 1)
Data loss in th	ne past 1 day(s) (a	
Data loss in th	ent through Cellular Data Acce	
Data loss in th		
Data loss in th	ent through Cellular Data Acce	
Data loss in th Data suppleme IP Address Port	ent through Cellular Data Acce	ss
Data loss in th Data suppleme IP Address	ent through Cellular Data Acce 0.0.0.0.0 9400 nentary data	ss (0 to 65535, default: 9400)
Data loss in th Data suppleme IP Address Port	ent through Cellular Data Acce	ss (0 to 65535, default: 9400)
Data loss in th Data suppleme IP Address Port older for supplem Path	ent through Cellular Data Acce 0.0.0.0.0 9400 nentary data C:\Users\Public\Documents\	ss (0 to 65535, default: 9400)
Data loss in th Data suppleme IP Address Port older for supplem Path	ent through Cellular Data Acce 0.0.0.0.0 9400 nentary data	ss (0 to 65535, default: 9400)

4. Start the run time service.



5. Start recording the logger.



6. When the specified time elapses, the data supplement on schedule function will be triggered. The progress will be displayed in the Log View as shown below.

MX-AOPC UA	ogger	Theres its					
File Server Logger Iools Runtime Help							
III = =							
Server Gr	oup er 1(192. 168. 127	.200:53192)	Recording				
			Start Stop				
			Automatically start recording when service starts running				
			Tag Selection				
	unlist						
- E Logger			Available Tags Selected Tags				
Log	ger 1		Tag Name				
			Server Name Tag Name Description				
			Server1 👒 2542-01.AI-00 Desc				
			Server1 🍫 2542-01.AI-01 Desc				
			Server1 🧐 2542-01.AI-02 Desc				
			Server1 🎨 2542-01.AI-03 Desc 👻				
	11.11	]					
Date	Time	Event					
2018/01/28	18:22:03	Data supplement (Sch					
2018/01/28	18:22:03	Finished retrieving log [from 2018/01/28 10:19:54 to 2018/01/28 10:20:59] from the device [MAC:00-90-e8-5a-21-6e].					
2018/01/28	18:22:00	Retrieving log 1/1 [from 2018/01/28 10:19:54 to 2018/01/28 10:20:59] from the device [MAC:00-90-e8-5a-21-6e] Connecting to the device [MAC:00-90-e8-5a-21-6e] for retrieving log from 2018/01/28 10:19:54 to 2018/01/28 10:20:59					
2018/01/28 2018/01/28	18:22:00 18:21:37	Connecting to the device [MAC:00-90-e8-5a-21-6e] for retrieving log from 2018/01/28 10:19:54 to 2018/01/28 10:20:59 Finished retrieving log [from 2018/01/27 10:21:00 to 2018/01/28 10:16:40] from the device [MAC:00-90-e8-5a-21-6e].					
2018/01/28	18:21:37	Finished retrieving log [mom 2018/01/27 10:21:00 to 2018/01/28 10:16:40] mom the device [MAC:00-90-88-58-21-66]. LoggerGroup1.Logger1: supplement data is saved to C: Users \Public\Documents\Woxa\WXAOPCLogger\Logger\Logger1. 20180124 005331\Logger1					
2018/01/28	18:21:30	LoggerGroup Llogger 1: supplement data is saved to C: Users Yubiic Uocuments Woxa WixAOPCLogger Logger Logger 1_20 180 124_005331 Logger 1 Retrieving log 1/1 [from 2018/01/27 10:21:00 to 2018/01/28 10:16:40] from the device [MAC:00-90-e8-5a-21-6e]					
2018/01/28	18:21:29		ice [MAC:00-90-e8-5a-21-6e] for retrieving log from 2018/01/27 10:21:00 to 2018/01/28 10:16:40				
2018/01/28	18:21:29	Trying to connect to the					
2018/01/28	18:21:29	Data supplement (Sch	edule) begin.				
2018/01/28	18:20:33	Start recording all logg	yer 🗸 🗸				
•		III					
Service Status : Rur	nning Tim	e: 18:22:27	Data Supplement Queue: 0000				

## **Configuration Console**

The following topics are covered in this chapter:

- Main Screen Overview
- Menu I tems
  - ≻ File
  - > Server
  - > Logger
  - > Tools
  - > Runtime
  - > Help

# Main Screen Overview

The MX-AOPC UA Logger's configuration console displays settings for connected MX-AOPC UA Servers and loggers. It also shows the logger runtime status.

MX-AOPC UA Logger 1	L		
<u>File Server Logger Tools Runtime Help 2</u>			
i 🗆 🖛 🖬 🖉 🕼 🗑 🗿 🤤		3	
Server Group Server 1(192.168.127.200:53192) 4 Comparison Logger Group List Comparison Logger 1 5	Recording         Start       Stop         Automatically start recording when service starts run         Tag Selection         Server 1       All Device         Available Tags         Tag Name         © DeviceGroup 1.Device 1.TagGroup 1.Ta         © E2242-01.AI-00         © E2242-01.AI-01         © E2242-01.AI-02         © E2242-01.AI-01         Server Name         Tag Name         Server 1         © 2542-01.AI-01         Server 1         © 2542-01.AI-02         Server 1         © 2542-01.AI-03	nning 6 Selected Tags Tag Name \$2542-01.AI-00 \$2542-01.AI-01 \$2542-01.AI-02 \$2542-01.AI-02 \$2542-01.AI-03 \$2542-01.AI-03 \$2542-01.AI-03 \$2542-01.AI-03 \$2542-01.AI-02 \$2542-01.AI	E E
Date Time Event			
2018/01/28         16:33:13         Auto reconnect to Ser           2018/01/26         23:14:33         Initializing database.           2018/01/26         23:14:33         LoggerGroup 1.Logger           2018/01/26         23:14:30         MX-AOPC UA Logger	untime service is stop. ver 1 success! (Service) 1 is invalid. No tag is selected. untime service is running.	7	
< III			Þ.
Service Status : Stopped 8 Time: 16:49:31 9		Data Supplement Queue: 0000 10	đ

No.	Zone	Description	
1	Software Title	Displays the name of the software: MX-AOPC UA Logger	
2	Menu Bar	All configuration functions can be accessed from these menu items	
3	Quick Launch Bar	Frequently used icons	
4	Server View	All MX-AOPC UA Servers	
5	Logger View	All Loggers	
6	Detailed View	Detailed settings of the servers and loggers	
7	Log View	Logger Runtime logs	
8	Runtime Service Status	Indicates if the logger runtime service is Running or Stopped	
9	Logger Time	Displays the Logger time (same as the PC's time)	
10	Data Supplement Queue	Displays the data supplement waiting items in the queue	

# Menu Items

## File

Use the File menu to manage project files.

<u>F</u> ile	<u>Server Logger Tools R</u> untime	<u>H</u> elp	
	New	Ctrl+N	
	Open	Ctrl+O	13 800
	Save	Ctrl+S	
	Save As		
	1 AOPC_Logger5.aog		
	2 AOPC_Logger4.aog		<u> </u>
	3 AOPC_Logger3.aog		
	4 AOPC_Logger2.aog		
	5 AOPC_Logger1.aog		
	Exit		

- 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.
- Previous saved files: Quickly open previously saved project files.
- Exit: Close the Configuration Console.

### Server

Use the Server menu to edit MX-AOPC UA Server connection settings.

😸 MX-/	AOPC UA Logger	
File S	erver Logger Too	ls Runtime Help
	Discovery Connect Disconnect Delete Properties	112:53192)
	Logger Group List EggerGroup1	

- Discovery: Discover MX-AOPC UA Servers and configure its connection settings.
- **Connect:** Connect the selected server.
- **Disconnect:** Disconnect the selected server.
- Delete: Delete the selected server.
- **Properties:** Modify the settings of the selected server.

**NOTE** The properties of a server cannot be modified either when the server is in connecting mode, or runtime service is in running mode. Stop runtime service and disconnect the server connection before modifying the server properties.

### Logger

Use the **Logger** menu to edit logger settings.

<u>File</u> <u>Server</u>	Logger Tools Runtime Help	
	New Logger Group New Logger Delete	
L	Start Recording Stop Recording	
	Data Supplement on Demand Terminate Data Supplement	
	Properties	

- New Logger Group: Create a new logger group.
- New Logger: Create a new logger.
- Delete: Delete the selected logger.
- Start Recording: Start recording for a selected logger group or a selected logger.
- Stop Recording: Stop recording for a selected logger group or a selected logger.
- **Data Supplement on Demand:** Retrieve lost data during a specified period. Refer to Testing Data Supplement on Demand in Chapter 2.
- Terminate Data Supplement: Terminate all of the data supplement waiting items in the queue.
- **Properties:** Modify the settings of an existing logger.

**NOTE** The properties of a logger cannot be modified either when the logger is in recording mode, or runtime service is in running mode. Stop runtime service before modifying logger properties.

### Tools

Use the **Tools** menu to configure data supplement settings, for certificate management, to access a system log, to change a password, or to modify console environment settings.

MX-AOPC UA Logger			
<u>File</u> <u>Server</u> <u>Logger</u>	ools <u>R</u> untime <u>H</u> elp		
	Data Supplement Settings Certificate Management		Î
Server Group	System Log	•	
	Change Password		
	Options		
Every Cogger Group List			

#### Data Supplement Settings

General Settings		
Retry Timeout	30	sec(s) (5 to 600, default: 30)
Retries	3	(0 to 10, default: 3)
Triggering Event		
Data suppleme	ent after network reconnection	
Data suppleme	nt on schedule	
Everyday at	00:00	
Data loss in th	ne nast 1 day(s) (1	to 7, default: 1)
Data suppleme	ent through Cellular Data Access	s
Data suppleme	_	s
	_	s (0 to 65535, default: 9400)
IP Address Port	9400	]
IP Address Port Folder for supplem	0 . 0 . 0 . 0 9400 nentary data	(0 to 65535, default: 9400)
IP Address Port	9400	(0 to 65535, default: 9400)
IP Address Port Folder for supplem Path	0 . 0 . 0 . 0 9400 nentary data	(0 to 65535, default: 9400)
IP Address Port Folder for supplem Path	0 . 0 . 0 . 0 9400 nentary data C:\Users\Public\Documents\M	(0 to 65535, default: 9400)

#### > General Settings:

- Retry Timeout: The retry timeout interval for retrieving supplementary data from a device's buffer.
- Retries: The number of retries allowed after a retry timeout.
- Triggering Event: Enable the following functions if the Moxa products connected to an MX-AOPC UA Server supports the data supplement function.
  - Data supplement after network reconnection: Enable data supplement function after network reconnection.
  - **Data supplement on schedule:** Enable data supplement function on schedule at the specified time. The triggering time can be set to everyday at a specific time. The data loss period can be set to 1 to 7 days in the past.
- Data supplement through Cellular Data Access: Enable this function if the Moxa products connected to the Cellular Data Access software support the data supplement function.
  - IP Address: The IP address of the Cellular Data Access software.
  - **Port:** The listen port of the Cellular Data Access software.

#### Folder for supplementary data

Path: The folder path to which the system can temporarily save supplementary data. Click

to change the folder path. Click **to** open the folder. Delete the supplementary data files after the data is written to the database.

#### Log Folder for Data Supplementary on Demand

Path: The folder path to which the system can temporarily save the log files of the supplementary

data on demand. Click to change the folder path.

#### Certificate Management

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

Click the **Trust Servers** tab, click **Import**, and select the server's CA file to import it into the MX-AOPC UA Logger. Click **Export** to export the selected certificate. Click **Remove** to remove the selected certificate. Click **Trust** to trust the selected certificate. Click **View Certificate** to view the selected certificate.

Trust Servers	Instance Certificate	es		
Server Nam	e		URI	
👷 МХ-АОР	C UA Server		urn:CHARLESCHEN-	NB:MX-AOPC UA Server
•				•
Import	Export	Remove	Trust	View Certificate

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

Trust Servers Instance Certificates	
View Logger Certificate	Certificate MX-AOPC UA Logger is from 1/9/2018 4:24:45 PM to 12/14/2022 4:24:45 PM
Export Logger Certificate Reissue Certificate	

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

System Log

<u>File Server Logger To</u>	ools <u>R</u> untime <u>H</u> elp		
	Data Supplement Settings Certificate Management		ê 🔘 🛈 🏭
Server Group	System Log	•	Save to Text File
	Change Password		Reset System Log System Log Settings
	Options	L.	System Log Settings

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

erify Password	
Please enter password:	
••••	
ОК	Cancel

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



System Log Settings: Defines the maximum number of records that can be saved in the MX-AOPC UA Logger's system log (values can range from 1 to 30000; the default value is 30000).

System Log Settin	ngs	X
Event Records:	30000	(1~30000)
		OK Cancel

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

Change Password	×
Old Password: New Password:	
Confirm Password:	
	OK Cancel

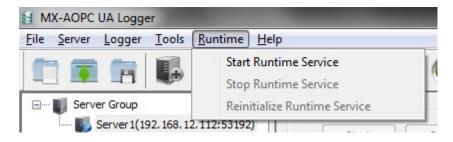
• Options: Configure environment settings for the MX-AOPC UA Logger's configuration console.

Configuration File				
Automatically save configuration every	10	×	min <mark>(s) (1 to</mark> :	30, default: 10)
V Automatically save configuration before	exitin	g <mark>this co</mark> r	nsole	

**NOTE** If **Automatically save configuration every xx min(s)** is enabled, the configuration file will be automatically saved only when a filename 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.

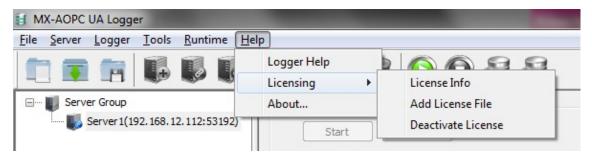


## Help

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

M B	X-AOPC	UA Logge	er				
<u>F</u> ile	Server	Logger	Tools	Runtime	Help		
C	1					Logger Help Licensing	. 1
<b></b> .	-	er Group				About	_ [
	····· 60	Server1(19	92.168.1	2.112:53192		Start	

- Logger Help: Launch the MX-AOPC UA Logger's help documentation.
- Licensing



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

User Code:	464EB14358CD
License Status:	Free Version
The max. number of Server:	1
The max. number of Logger:	1

- Add License File: Import a license file after completing the license registration process. Refer to License Registration and Activation to learn how to activate the license.
- Deactivate License: Deactivate the current paid license version and load factory default settings. Note that when you deactivate the license, your license file and runtime configurations will be deleted. Be sure to back up your runtime configurations before executing a license deactivation procedure.
- About: Displays the MX-AOPC UA Logger's version number and build number.

About		×
8	Moxa MX-AOPC UA Logger 1.0 build 16040818 Copyright (C) 2016 Moxa Inc.	ОК

# Server Management

The following topics are covered in this chapter:

#### Server Discovery

- > Getting the Server Endpoint from an MX-AOPC UA Server
- > Discovering MX-AOPC UA Servers

#### Server Connection

- > Connecting to the discovered MX-AOPC UA Server
- > Editing the connection settings of the discovered MX-AOPC UA Server
- > Deleting the connection settings of the discovered MX-AOPC UA Server

C

# **Server Discovery**

In this section we explain how to discover an MX-AOPC UA Server.

An MX-AOPC UA Logger can discover MX-AOPC UA Servers installed on a local or remote computer. First, get the server endpoint, and then follow the onscreen instructions to discover the server. After the server has been discovered, be sure to connect to the server before adding the tags into loggers for recording.

**NOTE** The server discovery or server connection settings can only be configured when runtime service status is stopped. To stop the runtime, click the stop runtime icon on the quick launch bar.

### Getting the Server Endpoint from an MX-AOPC UA Server

 Open the MX-AOPC UA Server configuration console by clicking Tools → OPC UA Settings → Server Endpoint Settings. Be sure the status of the Server Endpoint is valid, and then copy the Server Endpoint of the MX-AOPC UA Server.

Server Endpoints Se	ttings	×
URL		Status
opc.tcp://192.168	12.112:53192/MXAOPC/UAServer	Valid
Network Interface:	Intel(R) Ethernet Connection (3) I2	218-LM 👻
Port Number:	53192	
	opc.tcp://192.168.12.112:53192/M	IXAOPC/UAServer
	Add Delete	Apply Close

2. Go to Tools → OPC UA Settings → Security Policy Setting and confirm the MX-AOPC UA Server's security policy settings. The security policy is applied to connections between OPC UA clients and the MX-AOPC UA Server. If Basic128Rsa15: Sign, Basic128Rsa15: Sign and Encrypt, or both of these options are selected, you will need to configure Certificates Management settings on both MX-AOPC UA Server (Tools → OPC UA Settings → Certificates Management) and MX-AOPC UA Logger (Tools → Certificate Management). If only "None" is selected, you only need to know the password of the MX-AOPC UA Server.

✓ None	
Basic 128Rsa 15 - Sig	jn
Basic 128Rsa 15 - Sig	in and Encrypt

## **Discovering MX-AOPC UA Servers**

1. Go to the MX-AOPC UA Logger, right click a Server Group and then click **Discovery** in the pop up menu, or click the Server Group to select it and then click the **Discovery** icon on the quick launch toolbar to start discovering MX-AOPC UA Servers.

8 N	IX-AOPC	UA Logge	er							
<u>F</u> ile	Server	Logger	Tools	<u>R</u> untime <u>H</u> elp						
C	1		-		19	<b>S</b>	$\bigcirc$	0	36	3
	Serve	er Group								
			Dis	very						

2. Select Local Server if the MX-AOPC UA Server and MX-AOPC UA Logger are installed on the same computer, or click Remote Server Endpoint and type in the target Server Endpoint. Next, type in the password of the MX-AOPC UA Server, and then click the Next button.

Discovery S	Server 📃 📃	×
۲	Local Server	
	opc.tcp://192.168.12.112:53192/MXAOPC/UAServer 🗸	
0	Remote Server Endpoint	
	Password	
	< Back Next > Cancel	

 Modify Server Name, and configure Security Policy and Security Mode to be the same as the MX-AOPC UA Server's UA Settings. If necessary, update the Publish Interval, Sampling Interval, Queue Size, or Discard Oldest settings, and then click Finish.

Server Name	Server 1		(max. length = 30; "." is not allowed
Server Endpoint:	opc.tcp://192.10	58.12.112:53	192/MXAOPC/UAServer
Security Policy	None		▼
Security Mode	None		•
Subscription Setti	ngs		
Publish Interva	1000	ms 🖈	(0 to 86400000, default: 1000)
Keep Alive Count	t 10		
Lifetime Coun	t 1000		
Monitored Item Se	ettings		
Sampling Interva	l 500	in ms	(-1 to 86400000, default: 500)
Queue Size	e 10	×	(0 to 10000, default: 10)
Discard Oldes	t 🔽		

- Server Name: Give a name for the connection of the MX-AOPC UA Server (max. length = 30; a period "." is not allowed). The server name should be unique and cannot be modified after you click Finish.
- > Server Endpoint: The server endpoint of the discovered MX-AOPC UA Server.
- > Security Policy: Configure the same security policy as the MX-AOPC UA Server.
- Security Mode: Configure the same security mode as the MX-AOPC UA Server.
- Subscription Settings: Configure the subscription settings for MX-AOPC UA Logger to receive OPC tag data from the MX-AOPC UA Server.
  - **Publish Interval:** The publish interval defines the rate at which the Server sends OPC tag data to the Logger (unit: ms; values: 0 to 86400000; default: 1000; 0: the fastest practical rate).
  - **Keep Alive Count:** The keep alive count defines the number of publish intervals that must expire before a keep alive message is sent to MX-AOPC UA Server.
  - Lifetime Count: The lifetime count defines the number of times of publish interval can expire without the MX-AOPC UA Logger sending data updates or keep alive messages before the server deletes the subscription.
- Monitored Item Settings
  - **Sampling Interval:** The sampling interval defines the rate at which the server checks for changes in the monitored device readings (unit: ms; values: -1 to 86400000; default: 500; the default interval set by the server: -1; the fastest practical rate: 0).
  - Queue Size: The queue size defines the number of data updates that the OPC UA Server will queue for the subscription

Discard Oldest: The discard oldest defines the discard policy of the queue. When checked, the oldest notification in the queue will be discarded and will not be sent to the MX-AOPC UA Logger. When unchecked, the latest notification will be discarded and will not be sent to the MX-AOPC UA Logger (default setting: enabled).

# **Server Connection**

In this section we explain how to connect to the discovered MX-AOPC UA Server, and how to modify the connection settings.

### Connecting to the discovered MX-AOPC UA Server

Before configuring the logger, you must first connect to the discovered MX-AOPC UA Server to get the OPC tag list from the servers.

- 1. Ensure the runtime service is stop.
- Right click the server and click Connect in the pop up menu, or click the server to select it and then click the Connect icon on the quick launch toolbar. The server should now be connected to the MX-AOPC UA Logger.

MX-AOPC UA Logger						
<u>File Server Logger Tools Rur</u>	ntime <u>H</u> elp					
i 🗊 🖬 🖬 👪 🚺		) 😵 🔒 🚺	088	2 2 2		
Server Group      Server 1(192, 168, 127, 27      Server 1(192, 168, 127, 27      Logger Group List     Logger Group 1      Logger 1		Server Endpoint: Security Policy: Security Mode: Subscription Setting: Publish Interval: Keep Alive Count: Lifetime Count:	opc.tcp://192.168.127.20 None None 1000 ms	Monitored Item Settings Sampling Interval: 500 ms Queue Size: 10 Discard Oldest: Yes		
Date Time Event						
MX-AOPC UA Logger						
<u>File Server Logger Tools Run</u>	itime <u>H</u> elp					
			022	88		
Server Group     Server 1(192.168.127.20		Server Endpoint: Security Policy:		00:53192/MXAOPC/UAServer		

# Editing the connection settings of the discovered MX-AOPC UA

### Server

Take the following steps to edit the connection settings of the discovered MX-AOPC UA Server:

- 1. Ensure the runtime service is stopped.
- 2. Right click the server and click **Disconnect** in the pop up menu, or click the server to select it and then click the **Disconnect** icon on the quick launch toolbar.

MX-AOPC UA Logger		
<u>File</u> <u>Server</u> Logger <u>T</u> ools	Runtime Help	
i 🗂 🖬 🖬 🞼	<b>I I I I I I I I I I</b>	3 3
Server Group Server 1(192.168.		0:53192/MXAOPC/UAServer Monitored Item Settings Sampling Interval: 500 ms Queue Size: 10 Discard Oldest: Yes
Date Time	Event	
2018/01/28 18:45:40	Connect to Server1 success!	
•	m	4
Service Status : Stopped T	me: 18:48:44	Data Supplement Queue: 0000

3. Right click the server and click **Properties** in the pop up menu, or click the server to select it and then click the **Properties** icon on the quick launch toolbar. Follow the onscreen instructions to edit the settings.

MX-AOPC UA Logger					- • ×
<u>File Server Logger T</u> ools	<u>R</u> untime <u>H</u> elp				
i 🗊 🗊 📻   👪		🕵 😭 🚫	0333		
⊡… III Server Group	7.200:53192)	Server Endpoint:	opc.tcp://192.168.127.200:53	92/MXAOPC/UAServer	
	Connect Disconnect	Security Policy:	None		
	Delete	Security Mode:	None		
E-Si Logger Group List	Properties	Subscription Settings		Monitored Item Settings	
Logger I		Publish Interval:	1000 ms	Sampling Interval: 500 ms	

**NOTE** The server name cannot be modified after the initial setting. To change the server name, delete the original server settings and then use the server discovery process to create a new one. Note that deleting the server connection settings will delete all of the related logger settings at the same time.

# Deleting the connection settings of the discovered MX-AOPC

# **UA Server**

Take the following steps to delete the connection settings of the discovered MX-AOPC UA Server:

- 1. Ensure the runtime service is stopped.
- 2. Right click the server and click **Delete** in the popup menu, or click the server to select it and then click the **Delete** icon on the quick launch toolbar.

MX-AOPC UA Logger						
<u>File Server Logger Tools Rur</u>	ntime <u>H</u> elp					
i 🗂 📭 📻 🐻 🐻		x 🔒 🕥	68	8	9 8	
Server Group  Server 1(192.168.127.20  Logger Group List  Generation Server 1  Logger Group 1  Logger 1		Server Endpoint: Security Policy: Security Mode: ubscription Settings Publish Interval: Keep Alive Count: Lifetime Count:	opc.tcp://192.1 None None 1000 ms 10		:53192/MXAOPC/UAServer Monitored Item Settir Sampling Interval: Queue Size: Discard Oldest:	500 ms 10
Date Time	Event					
	18:52:13				Data Supplement Qu	1eue: 0000
Dervice Status . Stopped Time: 1	0.52.15				Data Supplement Qu	1606, 0000

3. Click **OK** to confirm that you would like to delete logger settings at the same time.

X-AOPC UA Logger	
Deleting this server endpoint will a same time. Do you want to delete	delete all of the related logger settings at the this server endpoint?
	OK Cancel

# Logger Management

The following topics are covered in this chapter:

#### Logger Group

- > Adding a Logger Group to a Logger Group List
- Editing a Logger Group
- > Deleting a Logger Group

#### Loggers

- > Adding a Logger to a Tag Group
- Editing a Logger
- Deleting a Logger

#### Logger Recording

- Select Tags for Recording
- Start or Stop Recording
- Logger Status

# Logger Group

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

# Adding a Logger Group to a Logger Group List

- 1. Ensure that the runtime service is stopped.
- 2. Right click the Logger Group List and then click **New Logger Group** in the popup menu, or click the Logger Group List to select it and then click the **New Tag Group** icon on the Quick Launch toolbar.

MX-AOPC UA Logger
Eile Server Logger Iools Runtime Help
i 🗆 🖛 📭 🗣 🚰 🚭 🎯 🚱 🗃 🗃 🗃 🗐
Server Group         Server 1(192. 168. 127. 200: 53192)
New Logger Group
Start Recording
Stop Recording
Date Time Event
۲ <u>ــــــــــــــــــــــــــــــــــــ</u>
Service Status : Stopped Time: 18:55:07 Data Supplement Queue: 0000

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

ogger Group Prope	rty 📃
Logger Group Name	LoggerGroup1
	(max. length = 30; "." is not allowed)
	OK Cancel

4. The new logger group will be added to the Logger Group List.

<u>File S</u> erver <u>L</u> ogger <u>T</u> ools <u>R</u> untime <u>H</u> elp			
	88 😭	00	
Server Group     Server 1(192, 168, 127, 200:53192)	Logger Name	Туре	Output
Logger Group List  LoggerGroup 1	1		

## **Editing a Logger Group**

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

File Server Longer	<u>T</u> ools <u>R</u> untime <u>H</u> elp			
				0000
1			$\bigcirc \bigcirc$	99999
🖃 🗤 🗊 Server Group		Logger Name	Туре	Output
Server 1(19	92.168.127.200:53192)			
En Stogger Group Lis	t			
Logger Group Lis     Logger Group	1			
	New Logger			
	1			
	New Logger			
	New Logger Delete			

# **Deleting a Logger Group**

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

	ger <u>T</u> ools <u>R</u> untime <u>H</u> elp		6	
🖃 🕡 Server Gro		Logger Name	Туре	Output
E- Stogger Group				
	Delete			
	Start Recording Stop Recording			

# Loggers

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

# Adding a Logger to a Tag Group

- 1. Ensure the runtime service is stopped.
- 2. Right click on the logger group that the logger will be added to and then click **New Logger** in the popup menu, or click the logger group to select it and then click the **New Logger** icon on the Quick Launch toolbar.

射 MX-AOPC UA Logger				
<u>File Server Logger Tools Runtime H</u> elp				
i 🗆 🖛 🖛 📭 🖉 🖪 🖬 🚺	i 🖗 🕤 🔾 🎝 😹 🗟 🖉 👔			
□ ■ Server Group	Logger Name Type Output			
Date Time Event				
	• • • • • • • • • • • • • • • • • • •			
Service Status : Stopped Time: 19:00:27	Data Supplement Queue: 0000			

3. Type in the name of the logger, configure the data file type, database or Azure IoT, and then click Next.

Logger Name	Logger 1					
	(max. leng	th = 30; only	20 if using Or	ade Database)		
Excel F	ile:					
Root	Path:	C:\Users\Pu	ublic \Documen	ts\Moxa\MXAOP(	CLogger \Logger	
File se Access Root I				default: 60) ts\Moxa\MXAOPC	CLogger\Logger	]]
O Databa Source	se: e Name:					Setting
O Azure I						becang

- Logger Name: The naming rules of the logger name depend on the specifications of Microsoft Excel, Access, SQL Server, Oracle Database, or Azure IoT. The naming rules can be summarized as follows:
  - Microsoft Excel (max. length = 30; the first four characters: a-z, A-z; the following characters: 0-9, a-z, A-Z, \_)
  - Microsoft Access (max. length = 30; the following characters are NOT allowed: . ! ` [ ] ' ,)
  - Database Source Name (DSN) and Azure IoT (max. length = 30 (only 20 if using Oracle Database); the following characters are NOT allowed: . [] ',")
- Excel File: Select this option if you would like to record data into Excel files. Configure the root path for saving those files. Configure the time if you would like to separate the files by interval.
- Access File: Select this option if you would like to record data into Access files. Configure the root path for saving those files.
- Database: Select this option if you would like to record data into a Microsoft SQL Server or Oracle database. Refer to Appendix B for details on how to configure the database connection settings.
- Azure IoT: Select this option if you would like to record data in a Microsoft Azure IoT Cloud. Copy the Connection String you got from Microsoft Azure and paste it into this field.

4. Select the Data Field items, change the default names in the Table Field, change the order of the items, and if necessary change the time format for the timestamp. Click **Finish** to save the settings.

	*Table Field	Data Type
<tag_id></tag_id>	<tag_id></tag_id>	String
<value></value>	<value></value>	String
<unit></unit>	<unit></unit>	String
<source_utc_timesta< td=""><td><source_utc_timesta< td=""><td>**DateTime</td></source_utc_timesta<></td></source_utc_timesta<>	<source_utc_timesta< td=""><td>**DateTime</td></source_utc_timesta<>	**DateTime
<source_timezone></source_timezone>	<source_timezone></source_timezone>	Float
<pre></pre>		
<pre>SERVER_UTC_TIMESTA</pre>		
<pre><server_timezone></server_timezone></pre>		
<quality></quality>		
nax. length = 30; "! # \$ [ ] { } " ' option: DateTime or String Automatically start recording whe		

Data Field: By default, data of <TAG\_ID>, <VALUE>, <UNIT>, <SOURCE\_UTC\_TIMESTAMP>, <SOURCE\_TIMEZONE> will be recorded into the database. Data of <DATA\_TYPE>,

<SERVER\_UTC\_TIMESTAMP>, <SERVER\_TIMEZONE>, and <QUALITY> are optional. The time data of <SOURCE\_UTC\_TIMESTAMP> and <SOURCE\_TIMEZONE> in an OPC tag is added by Moxa's I/O device when the event occurs. The time data of <SERVER\_UTC\_TIMESTAMP> and <SERVER\_TIMEZONE> in an OPC tag is added by the MX-AOPC UA Server when the tag is received.

- Table Field: The name of each data field, which can be defined by the user, will be the column name of the table in the database. The max. length is 30 characters.
   The following characters are not allowed: ! # \$ [ ] { } " ' ? . , `.
- Data Type: The data type of the timestamp can be either DateTime or String type. If the second value of the timestamp has decimal points, select String type to record the decimal point value into the database. The DateTime format only supports integer values.
- > A love the selected item up.
- Move the selected item down.
- Automatically start recording when service starts running: Enable this function if you want the logger to start recording automatically whenever the runtime service starts running.

## **Editing a Logger**

Take the following steps to edit a logger's properties:

- 1. Ensure the runtime service is stopped.
- 2. Right click the logger and then click **Properties** in the popup menu, or click the logger to select it and then click the **Properties** icon on the Quick Launch toolbar.

MX-AOPC UA Logger	
<u>File Server Logger Tools Runtime Help</u>	
i 🗆 🖬 🖬 🖥 🖉 🕼 🖬 🍇	i 🗣 🕤 🔾 🎝 🗧 着 着 着
	Recording     A       Start     Stop       Automatically start recording when service starts running     Tag Selection
Goger I	Server 1   All Device  Available Tags  Selected Tags
Delete           Start Recording           Stop Recording	Tag Name Tag Name Tag Name
Properties	Server Name Tag Name Description
Date Time Event	
· [	•
Service Status : Stopped Time: 19:08:49	Data Supplement Queue: 0000

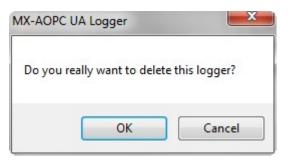
### **Deleting a Logger**

Take the following steps to delete a logger:

- 1. Ensure the runtime service is stopped.
- 2. Right click the logger and click **Delete** in the popup menu, or click the logger to select it and then click the **Delete** icon on the quick launch toolbar.

MX-AOPC UA Logger		
<u>File Server Logger Too</u>		
i 🗇 🗖 🗖 🗐		* 😭 🔾 🛈 Z Z Z Z Z
Server Group		Recording       Start       Start
E St Logger Group List		Server 1  All Device  All Device  C  E  Available Tags  Selected Tags
	Delete Start Recording Stop Recording Properties	Tag Name     Tag Name       © 2542-01.AI-00     Tag Name       © 2542-01.AI-01     Tag Name       Server Name     Tag Name         Server Name     Tag Name
Date Time	Event	
	III	
Service Status : Stopped	Time: 19:14:26	Data Supplement Queue: 0000

3. Click  ${\bf OK}$  to confirm that you would like to delete this logger.



# Logger Recording

In this section we explain how to use the configuration console to select tags for recording, to start or stop recording, and to check the status of a logger.

# Select Tags for Recording

- 1. Ensure the runtime service is stopped.
- 2. Ensure that the server is connected.
- 3. Click the refresh button to get the updated tags from the server.

H MX-AOPC UA Logger	
<u>File Server Logger Tools Runtime Help</u>	
i 🗆 🖛 🖬 😼 🕼 🕼 🕄	1 📽 🕤 🗿 🗟 🗟 🗟 着 🗃
□ III Server Group	Recording       Start     Stop       Automatically start recording when service starts running       Tag Selection
□ 😫 Logger Group List □ 😭 LoggerGroup 1	Server1  All Device  C All Device  Selected Tags
Logger1	Available rags     Selected rags       Tag Name     Image: Constraint of the selected rags       Image: Constraint of the selected rags     Tag Name       Image: Constraint of the selected rags     Image: Constraint of the selected rags       Image: Constraint of the selected rags     Tag Name       Image: Constraint of the selected rags     Image: Constraint of the selected rags       Image: Constraint of the selected rags     Image: Constraint of the selected rags       Image: Constraint of the selected rags     Image: Constraint of the selected rags       Image: Constraint of the selected rags     Image: Constraint of the selected rags       Image: Constraint of the selected rags     Image: Constraint of the selected rags       Image: Constraint of the selected rags     Image: Constraint of the selected rags       Image: Constraint of the selected rags     Image: Constraint of the selected rags       Image: Constraint of the selected rags     Image: Constraint of the selected rags       Image: Constraint of the selected rags     Image: Constraint of the selected rags       Image: Constraint of the selected rags     Image: Constraint of the selected rags       Image: Constraint of the selected rags     Image: Constraint of the selected rags       Image: Constraint of the selected rags     Image: Constraint of the selected rags       Image: Constraint of the selected rags     Image: Constraint of the selected rags       Image: Constraint of the s
	Server Name Tag Name Description
Date Time Event	
< III	
Service Status : Stopped Time: 19:15:59	Data Supplement Queue: 0000

4. Select the tag in the Available Tags list and click the arrow button to add it into the Selected Tags list.

Gerver1	▼ All De				
vailable Tags			Selected Tags		
Tag Name		<u> </u>	Tag Name		
🕸 DAC-01.AI-00					
S DAC-01.AI-01					
👒 DAC-01.AI-02					
🎯 DAC-01.AI-03					
<iii< td=""><td></td><td>•</td><td>•</td><td>III</td><td>•</td></iii<>		•	•	III	•
Server Name Ta	g Name		Description	i .	

- > . add all tags into the Selected Tags list.
- into the Selected Tags list.
- > ....:: removed all tags from the Selected Tags list.
- 5. The data from the tags in the list shown below will be recorded after the logger is in recording mode.

Server1	<ul> <li>All Device</li> </ul>	- C	
Available Tags		Selected Tags	
Tag Name		Tag Name	*
		DAC-01.AI-00	
		🗛 👒 DAC-01.AI-01	
		CALC-01.AI-02	
		44	
		🔍 🥎 DAC-01.AI-03	-
٠ [	III		•
<ul> <li>✓</li> <li>✓</li></ul>	III Tag Name	AC-01.AI-03	
		▲	
Server Name	Tag Name	DAC-01.AI-03	
Server Name Server1	Tag Name	DAC-01.AI-03	

## **Start or Stop Recording**

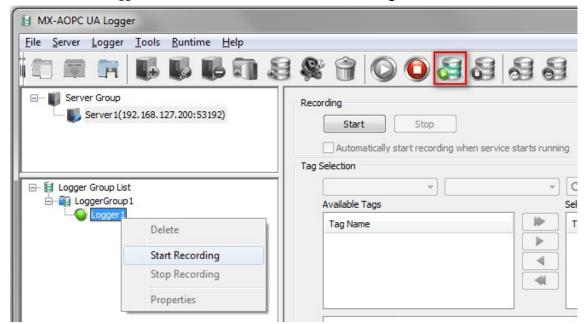
- 1. Ensure the runtime service is running.
- 2. Ensure the server is connected.
- 3. Ensure the logger is in ready mode (indicated by green lights).
- To start recording all loggers in one logger group, right click on the logger group and then click Start Recording in the popup menu, or click the logger group to select it and then click the Start Recording icon on the Quick Launch toolbar.

MX-AOPC UA Log	jger									_ 0 <mark>_</mark> X
<u>File</u> <u>Server</u> Logge	er <u>T</u> ools <u>R</u> unt	ime <u>H</u> elp								
	+		<b>\$</b> 😭	003	8	33				
🖃 🗐 Server Group			gger Name	Туре	Output					
	(192.168.127.200	:53192) Lo	gger 1	Excel	C: \Users \Pi	ublic\Documents'	Moxa (MXAOP	CLogger \Logg	er\Logger1_2	0180128_110
Logger Group I	n New Log Delete									
	Start Rec									
	Stop Rec	ording								
	Propertie	es								
Date Ti	ime	Event								
2018/01/28 1	9:17:58 9:17:58 9:17:54	LoggerGroup 1.Logger 1 s Initializing database MX-AOPC UA Logger run								
•	-	ш								Þ
Service Status : Runnin	ng Time: 19	:18:06			_	Data S	Supplement (	ueue: 0000		

5. All of the loggers in the logger group will be in recording mode (indicated by red lights).

MX-AOPC UA Logger			
<u>File Server Logger Tools Runtime H</u> elp			
		005	1 <b>6</b> 8 8
🖃 🗤 💵 Server Group	Logger Name	Туре	Output
Server 1(192.168.127.200:53192)	Logger 1	Excel	C: \Users\Public\Documents\Moxa\MX
Construction			

6. To start recording a specific logger, right click on the logger and then click **Start Recording** in the popup menu, or click the logger to select it and then click the **Start Recording** icon on the Quick Launch toolbar.



7. To stop recording, right click on the logger group or the logger and then click **Stop Recording** in the popup menu, or click the logger group or the logger to select it and then click the **Stop Recording** icon on the Quick Launch toolbar.

MX-AOPC UA Logger				
<u>File</u> <u>Server</u> Logger	<u>T</u> ools <u>R</u> untime <u>H</u> elp			
		9 🛠 🕯	$\bigcirc$	3 5 3 8
🖃 🗤 💵 Server Group		Logger Name	Type	Output
🌄 Server 1(192	2.168.127.200:53192)	Logger 1	Excel	C:\Users\Public\Documents\Mo
St Logger Group List	New Logger			
	Delete Start Recording			
	Stop Recording Properties			

NOTE

8. To check the recorded data, stop the runtime service and click the data folder of the logger. Open the data file in the folder to check the recorded data.

MX-AOPC UA Logger	
File Server Logger Iools Runtime Help	
Server Group Server 1(192.168.127.200:53192)	Recording         Start       Stop         Automatically start recording when service starts running         Tag Selection         Server 1       All Device         Available Tags       Selected Tags
Logger1	Tag Name       Tag Name         PeviceGroup 1. Device 1. TagGroup 1. Ta       PeviceGroup 1. Ta         E2242-01. AI-00       2542-01. AI-01         E2242-01. AI-01       2542-01. AI-02         E2242-01. AI-02       PeviceGroup 1. Ta         E2242-01. AI-01       2542-01. AI-02         E2242-01. AI-02       PeviceGroup 1. Ta         E2242-01. AI-01       2542-01. AI-02         E2242-01. DIO-00       PeviceGroup 1. Ta
	Server NameTag NameDescriptionServer1% 2542-01.AI-00DescServer1% 2542-01.AI-01DescServer1% 2542-01.AI-02DescServer1% 2542-01.AI-03Desc
Date Time Event	Property Type: Excel Output: C:\Users\Public\Documents\Moxa\MXAOPCLogger\Logger\Logger1_20180128_110840 Table: Logger1
2018/01/28 19:25:20 MX-AOPC UA Logger n 2018/01/28 19:23:38 Start recording logger	
Computer 🕨 🕻	Windows7_OS (C:) ► Users ► Public ► Documents
Organize 🔻 Include in librar	y ▼ Share with ▼ New folder
☆ Favorites <sup>™</sup> Recent Places <sup>™</sup> Downloads	Name Logger1_20180128_110000.xls
ure to close the Excel or Access file AOPC UA Logger will not be able to	e at the target root path before starting to record. Otherwise, the record data to the target file.

**NOTE** DO NOT open the spreadsheet when recording. Doing so will cause the file to be corrupted because it is already opened by the MX-AOPC UA Logger service. To open the spreadsheet, stop the runtime service of the MX-AOPC UA Logger, and then click the folder icon to access the file.

# Logger Status

The following table gives the meanings of the logger status indicator lights.

Light	Color	Status	Note
			The logger can be configured only when
			runtime service stops.
			Any configuration change will be updated to the
6			Logger's runtime service after starting the
$\bigcirc$	Solid Gray	Configurable Mode	runtime service. Without starting the runtime
			service, any change will be discarded after the
			configuration console is closed. Be sure to save
			your project file when you close the
			configuration console.
$\bigcirc$	Solid Green	Ready Mode	The logger is ready for recording.
	Solid Red	Recording Mode	The logger is recording.
	Solid Yellow		The logger is not configured correctly, and data
		Error Mode – Configuration	is not being saved to the database.
			Check the tag selection or database connection
			of the logger.
			A server related to some selected tags is
	Flashing Red	Error Mode – Server	disconnected.
	and Yellow		Check the server connection or server's
			Endpoint settings.
$\bigcirc$	Flashing Pink		The logger is retrieving supplementary data
	and Gray	Data Supplement Mode	from device's buffer storage or supplementing
	5		data into the database.

# **License Registration and Activation**

Three versions of the MX-AOPC UA Logger are available. The trial version, which supports up to 1 MX-AOPC UA Server connection and up to 1 data logger, 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 1 MX-AOPC UA Server connection and up to 1 data logger. The three versions are summarized in the following table:

Version	MX-AOPC UA Server connection	Data Logger	Run Time	License File
Trial	Up to 1	Up to 1	30 days	Not Required
Free	Up to 1	Up to 1	Unlimited	Required
Paid	Up to 2	Up to 10	Unlimited	Required

Take the following steps to register a license.

#### Step 1:

Get the PC User Code from the MX-AOPC UA Logger'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.

Manala Manala and
ree Version
ОК

ΜΟΧΛ°	
MN:	
Product S/N:	
Rev.: 1.0.0	Made in Taiwan
	P/N: 3093018000021
Registration Code: TZAD010000001231	

#### 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 Logger. Select Free Version and enter the User Code, or select Paid Version and enter both the User Code and Registration Code.

Μ		Software Licensing
Home 2	> Activate Your Software >	Software Package > MX-AOPC UA Logger
0	Free Version User Code:	
۲	Paid Version Registration Code: User Code:	Submit

#### Step 4:

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

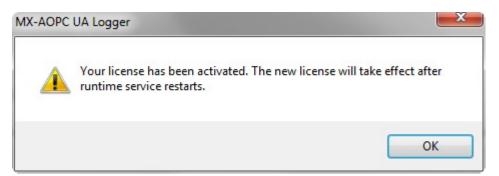
#### Step 5:

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

ile <u>S</u> erver <u>L</u> ogger <u>T</u> ools <u>R</u> untime <u></u>	lelp	
	Logger Help	AARR
	Licensing	License Info
E Server Group About		Add License File
퉳 Server 1 (192. 168. 12. 112: 53192)		Deactivate License

#### Step 6:

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



ense Info	×
User Code:	464EB14358CD
License Status:	Free Version
The max. number of Server:	1
The max. number of Logger:	1
	ОК
cense Info	
	464EB14358CD
	464EB14358CD
	464EB14358CD Paid Version
User Code: License Status:	464EB14358CD Paid Version 2

# **System Performance Reference**

These performance results provide a reference for evaluating MX-AOPC UA Logger's capability when designing a system architecture. The results show the maximum number of tags of data that can be recorded into the database without resulting in a data queue.

- CPU: i7-4790, 3.60 GHz
- **RAM:** 8 GB
- Operating System: Microsoft Windows 7
- Editor: Microsoft Office 2010 Access and Excel
- Database: Oracle database, Microsoft SQL Server, MySQL
- OPC UA Software: MX-AOPC UA Server & MX-AOPC UA Logger
- Cloud: Azure IoT
- Test Case:
  - > One database at a time
  - Disabled data supplement function
  - > Only running real-time data recording function

Database Type	Database	Max. No. of Tags	Max. No. of Tags
Database Type	Database	(per 1 second)	(per 5 seconds)
File	Excel	2000	10000
File	Access	3000	15000
DSN	Excel	2000	10000
DSN	Access	3000	15000
DSN	Microsoft SQL	1300	6500
DSN	Oracle	2000	10000
DSN	MySQL	800	4000
Cloud	Azure IoT	30	150

# **Database Connection Settings**

In this chapter, we explain how to connect a Logger to a Microsoft SQL Server or Oracle database.

1. Open **ODBC Data Source Administrator** by typing "odbcad32.exe" in the Windows Start search field, and then click it.

Programs (1)		
🚎 odbcad32.exe		
See more results		
P See more results		
odbcad32.exe	×	Hibernate 🕨
Documents	🔒 SysW(	DW64 🧿 🤞

2. Click the System DNS tab and then click Add.

ser DSN	System DSN	File DSN	Drivers	Tracing	Connection Poolin	g About
System D	ata Sources:					
Name	Driver					A <u>d</u> d
						Remove
					C	onfigure
	A 0000 C				tion about how to c	
	the indicated on this machi	data provid	er. A Sy	stem data	source is visible to a	all users

 Select ODBC driver for Oracle if you are using an Oracle database, and select ODBC Driver xx for SQL Server if you are using a Microsoft SQL Server. In the example shown below, "ODBC Driver 11 for SQL Server" is selected. Click Finish to go to the next step.

Create New Data Source	Select a driver for which you want	to set up a data source.
	Name	V ^
	Microsoft Text Driver (*.txt; *.csv	) 6
011 0	Microsoft Text-Treiber (*.txt; *.cs	
	Microsoft Visual FoxPro Driver	1
	Microsoft Visual FoxPro-Treiber	1
	ODBC Driver 11 for SQL Server	
	SQL Server	6 ≡
	SQL Server Native Client 11.0	2 +
	< III	- F
	< Back	

**NOTE** MX-AOPC UA Logger supports Oracle database (x86) and Microsoft SQL Server (x86) connections.

4. Type a name for the data source in the **Name** field. Click the **Server** field down arrow to search for instances of SQL Server. Select your target SQL Server, and then click **Finish**.

Create a New Data Sou	urce to SQL Server
<b>N</b>	This wizard will help you create an ODBC data source that you can use to connect to SQL Server.
SQL Server	What name do you want to use to refer to the data source?
	Name: MSSQL
	How do you want to describe the data source?
	Description:
	Which SQL Server do you want to connect to? Server: IE11WIN7\SQLEXPRESS
Passage marcol	
	Finish         Next >         Cancel         Help

5. Click Test Data Source to test the connection, or click OK to proceed.

ODBC Microsoft SQL Server Setup	×
A new ODBC data source will be created with the following configurati	ion:
Microsoft ODBC Driver for SQL Server Version 12.00.2000 Data Source Name: MSSQL Data Source Description: Server: IE11WIN7/SQLEXPRESS Use Integrated Security: Yes Database: (Default) Language: (Default) Data Encryption: No Trust Server Certificate: No Multiple Active Result Sets(MARS): No Translate Character Data: Yes Log Long Running Queries: No Log Driver Statistics: No Use Regional Settings: No Use ANSI Quoted Identifiers: Yes Use ANSI Quoted Identifiers: Yes Server Service Principle Name(SPN):	*
Mirror Server Service Principle Name(SPN):	<b>_</b>
Test Data Source OK Cance	

6. Click **OK** to complete ODBC Data Source settings.

Iser DSN	System DSN	File DSN	Drivers	Tracing	Connection F	ooling	About
System D	ata Sources:						
Name	Driver					A	dd
MSSQL	MSSQL ODBC Driver 11 for SQL Server Rem					move	
	Configure						igure
		data provid	ler. A Sys	stem data	tion about how source is visibl		

 Open Microsoft SQL Server Manage Studio. Right click on Security → Logins → NT AUTHORITY\SYSTEM, and then click Properties.

Image: Microsoft SQL Server Management         File       Edit       View       Debug       Tools         Image:	Window Help
Object Explorer	<b>▼</b> ₽ ×
Connect 🕶 🌹 🌹 🗏 🝸 🖒 🚸	
<ul> <li>              CHARLESCHEN-NB (SQL Server 1</li></ul>	:essingLogin##
NT Service\MSSQL	New Login
NT SERVICE\SQLSE	Script Login as
NT SERVICE\Winm	Policies +
sa sa	Facets
	Start PowerShell
🕀 📕 Cryptographic Provide	Reports +
⊕ 📕 Audits	Rename
	Delete
🗉 📕 Always On High Availabilit	Refresh
🕀 📕 Management	Properties
Integration Services Catalogs	

8. Ensure the default database is master.

Login Properties - NT AUTHO	RITY\SYSTEM			
Select a page	🖵 Script 🔻 😯 Help			
Server Roles User Mapping Securables Status	Login name:	tion	/STEM	Search
Connection	<ul> <li>Mapped to asymmetric key</li> </ul>	[		
	Map to Credential	Credential	Provider	- Add
v¥ <u>View connection properties</u>				
Progress				Remove
Ready	Default database:	master		-
.4 <sup>00</sup> .	Default language:	English		▼
			OI	Cancel

9. Ensure that **Public** for Server Roles is enabled.

Login Properties - NT AUTHO	ORITY\SYSTEM	
Select a page General Server Roles User Mapping Securables Status	✓ Script ▼  Help Server role is used to grant server-wide security privileges to a user. Server roles: <ul> <li>bulkadmin</li> <li>dbcreator</li> <li>diskadmin</li> <li>processadmin</li> <li>public</li> <li>secuntyadmin</li> <li>setupadmin</li> <li>sysadmin</li> </ul>	
Connection		
Progress Ready		 
	ОК	Cancel

10. Enable the **Master** Database of the User Mapping, and enable the **db\_owner** and **public** roles of the master.

Login Properties - NT AUTH	ORITY\SYSTEM	4			• ×				
Select a page	Script -	Help							
<ul> <li>General</li> <li>Server Roles</li> </ul>		- · ·							
👂 User Mapping	Users mappe <u>d</u> to this login:								
<ul> <li>Securables</li> <li>Status</li> </ul>	Мар	Database	User	Default Schema					
Status		master	NT AUTHORITY\SYS	dbo					
		model							
N 1		msdb							
		tempdb							
Connection          Y#       View connection properties         Progress	Database m db_acc db_bac db_data db_data db_dda db_dda db_den db_den V db_own	awriter admin ydatareader ydatawriter ner							
Ready	db_sec	urityadmin							
				ОК	Cancel				

11. Select the Database option when setting the Logger's data destination, and then click Setting.

Logger Name	Logger 1						
	(max. len	igth = 30; onl	y 20 if u	sing Oracle	Database)		
© Excel F	ile:						
Root	Path:	C:\Users\P	ublic\Do	cuments₩	loxa (MXAOP	CLogger \Logge	r
Outpu	ut Folder:	Logger1_20	0180128	_110840			
File se	eparated ev	very 60	-	min. (defa	ult: 60)		
Access	File:						
Root	Path:	C:\Users\P	ublic\Do	cuments₩	loxa\MXAOP	CLogger \Logge	r
Outpu	ut Folder:						
Oataba	ise:						
Source	e Name:						Setting
O Azure 1	oT:						
Conne	ection Strin	g:					

12. Click the Machine Data Source tab, select the SQL Server data source, and then click OK.

Data Source Name	Туре	Description
dBASE Files	User	
Excel Files	User	
MS Access Database	User	
MSSQL	System	
		New
"User" data sources are sp	pecific to a us	s machine, and cannot be shared. er on this machine. "System" data
sources can be used by all	users on this	machine, or by a system-wide service.

**NOTE** DO NOT click **NEW** from this window to configure ODBC Data Source settings. You will not be able to successfully connect the logger with the database.

The data source name is displayed in the Source Name field. Click NEXT to continue the Logger Settings.
 Refer to Chapter 5 for information about the following settings.

ogger Name	Logger 1	.ogger 1							
	(max. leng	gth = 30; onl	/ 20 if u	using C	Drade Da	tabase)			
C Excel Fi	le:								
Root F	ath:	C:\Users\P	ublic\D	ocume	nts\Moxa	MXAOPO	Logger Logg	ger	<b></b>
Outpu	t Folder:	Logger1_20	180128	8_110	840				
File se	parated ev		+	1	(default:	60)			
Access	File:								
Root P	ath:	C:\Users\P	ublic\D	ocume	nts\Moxa	MXAOPC	Logger \Logg	ger	
Outpu	t Folder:								
Oataba	se:								
Source	Name:	MSSQL						S	etting
O Azure I	oT:								
Conne	ction String	g:							