MX-AOPC UA Logger User's Manual

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www.moxa.com/product



MX-AOPC UA Logger User's Manual

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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

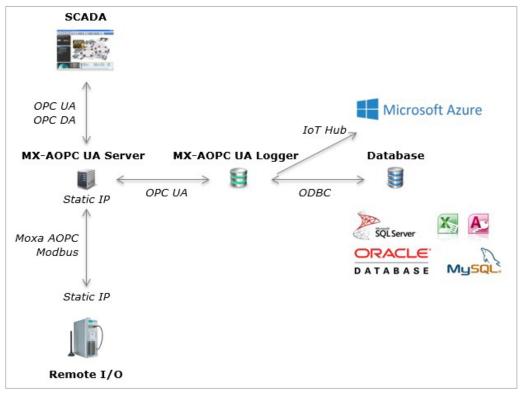
The MX-AOPC UA Logger provides two main functions.

- 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

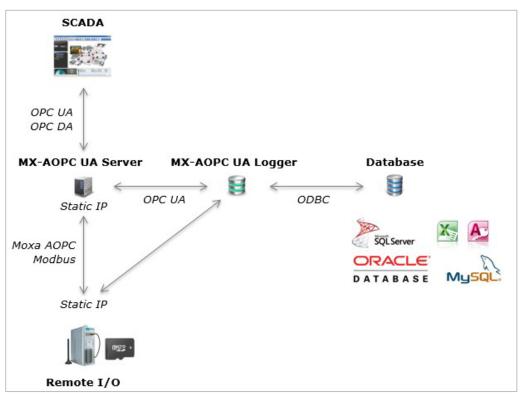
- MX-AOPC UA Logger saves data from selected OPC tags to a database, spreadsheet, or Azure Cloud. The data comes from MX-AOPC UA Server only, which collects data from field devices.
- MX-AOPC UA Server, MX-AOPC UA Logger, and Database can be installed either on the same computer or on different computers.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

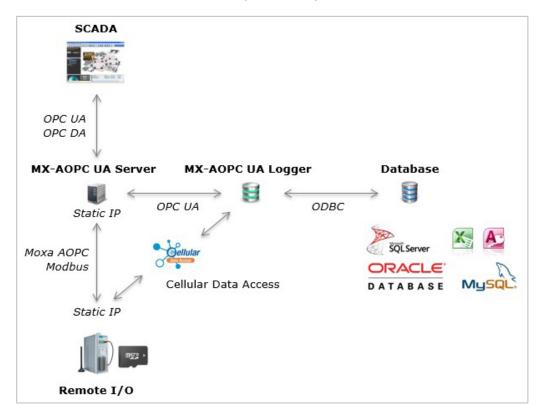
- Refer to Scenario 1 for real-time data collection.
- When network communication is reestablished, the MX-AOPC UA Logger automatically retrieves buffered data saved on microSD cards installed in Moxa's devices when the network was disconnected.
- After retrieving data from the data logs, the MX-AOPC 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 <u>www.moxa.com</u>.

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

Select Main Network A	dapter		×
Main Network Adapter:	Intel(R) Ethernet Co	onnection (3) I218-LM	1 🔻
Note: The main network This setting cannot be m			runtime service.
		ОК	Cancel

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.

MX-AOPC UA Logger	
<u>File Server Logger Tools Runtime H</u> elp	
Server Group	
🚼 Logger Group List	
Date Time Event	
<	
Service Status : Stopped Time: 08:21:05 Data Supplement Queue	: 0000

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.

Retry Timeout	30	sec(s) (5 to 600, default: 30)
Retries	3	(0 to 10, default: 3)
riggering Event		
✓ Data suppleme	ent after network reconnection	
Data suppleme	ent on schedule	
Everyday at	00:00	
Data loss in th	ne past 1 day(s) (1	to 7, default: 1)
_		
Data aunalama	at through Collular Data Acces	
Data suppleme	ent through Cellular Data Acces	S
Data suppleme		s
		s (0 to 65535, default: 9400)
IP Address	9400]
IP Address Port	9400	(0 to 65535, default: 9400)
IP Address Port Tolder for supplem Path	0 . 0 . 0 . 0 9400 nentary data C:\Users\Public\Documents\W	(0 to 65535, default: 9400)
IP Address Port Tolder for supplem Path	0 . 0 . 0 . 0 9400 nentary data	(0 to 65535, default: 9400) 10xa\MXAOPCL

• 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.

Trust Servers	Instance Certificates	
Server Nam	e	URI
😡 МХ-АОР	C UA Server	urn:CHARLESCHEN-NB:MX-AOPC UA Server
•		•
Import	Export 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.

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
Export Logger Certificate	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.

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	the second se
<u>File Server Logger Tools Runtime H</u> elp	
	6 8 9 9 0 8 8
Server Group	
😝 Logger Group List	

 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	Server						×
O	Local Server						-
۲	Remote Serv	ver Endpoint					*]
_	opc.tcp://19	2.168.127.200	:53192/MXAO	PC/UAServer			
	Password	••••					
					< 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://192.16	68.127.200:5	3192/MXAOPC/UAServer
Security Policy	None		•
Security Mode	None		•
Subscription Settin	ngs		
Publi <mark>s</mark> h Interva	l 1000	ms ms	(0 to 86400000, default: 1000)
Keep Alive Count	10		
Lifetime Count	1000		
Monitored Item Se	ettings		
Sampling Interva	500	ms 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		a that is the set	- • ×
<u>File Server Logger Tools Runtime H</u> elp			
1 T T T 6 6 6 6 1 8 8		8	
🖃 💵 Server Group			
Server 1(192. 168. 127. 200: 53192)	Server Endpoint: opc.tcp://192.168.12	27.200:53192/MXAOPC/UAServer	
	Security Policy: None		
	Security Mode: None		
Logger Group List LoggerGroup 1	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	

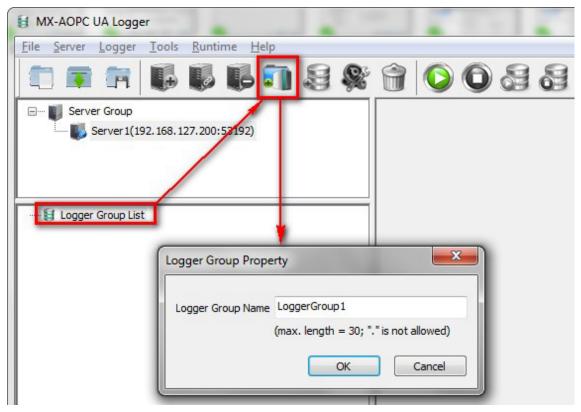
 Once the server is connected, you will not be allowed to change the server connection settings. To change the server connection settings, click the **Disconnect** icon to disconnect the MX-AOPC UA Server, and then click the **Properties** icon to change the server connection settings.

MX-AOPC UA Logger		
Eile <u>S</u> erver Logger <u>T</u> ools <u>R</u> untime <u>H</u> elp		9
		0
🖃 💵 Server Group		
🧓 Server 1 (192. 168. 127. 200: 53192)	Server Endpoint: opc.tcp://192.168.12	7.200:53192/MXAOPC/UAServer
	Security Policy: None	
	Security Mode: None	
E - St Logger Group List	Subscription Settings	Monitored Item Settings
	Subscription Setungs	Monitorea tiem setungs
	Publish Interval: 1000 ms	Sampling Interval: 500 ms
	Keep Alive Count: 10	Oueue Size: 10
	Lifetime Count: 1000	Discard Oldest: Yes
MX-AOPC UA Logger		
File <u>S</u> erver Logger <u>T</u> ools <u>R</u> untime <u>H</u> elp	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Eile Server Logger Iools Runtime Help		
Eile <u>S</u> erver Logger Iools <u>R</u> untime <u>H</u> elp		
Eile Server Logger Iools Runtime Help		8
Eile Server Logger Iools Runtime Help	Server Endpoint: opc.tcp://192.168.12	8
Eile Server Logger Iools Runtime Help	Server Endpoint: opc.tcp://192.168.12 Security Policy: None Security Mode: None	7.200:53192/MXAOPC/UAServer
Eile Server Logger Iools Runtime Help	Server Endpoint: opc.tcp://192.168.12 Security Policy: None	8
Eile Server Logger Iools Runtime Help	Server Endpoint: opc.tcp://192.168.12 Security Policy: None Security Mode: None	7.200:53192/MXAOPC/UAServer
File Server Logger Tools Runtime Help	Server Endpoint: opc.tcp://192.168.12 Security Policy: None Security Mode: None Subscription Settings Publish Interval: 1000 ms	7.200:53192/MXAOPC/UAServer Monitored Item Settings Sampling Interval: 500 ms
Eile Server Logger Iools Runtime Help	Server Endpoint: opc.tcp://192.168.12 Security Policy: None Security Mode: None Subscription Settings	7. 200: 53 192/MXAOPC/UAServer Monitored Item Settings
	Server Endpoint: opc.tcp://192.168.12 Security Policy: None Security Mode: None Subscription Settings Publish Interval: 1000 ms	7.200:53192/MXAOPC/UAServer Monitored Item Settings Sampling Interval: 500 ms

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 Logger	The source name of	of the data	base, or typ	a in the Connection Stre
<u>File Server Logger Tools Ru</u>	ntime Help		0 8 8	a a
Server Group Server 1(192.168.127.20	0:53192)	Logger Name	Туре	Output
⊡- 😫 Logger Group List		gger 1 ax. length = 30; only	20 if using Oracle Da	tabase)
	Root Path:	ited every 60	▼ min.(default:	WXAOPCLogger Logger
Date Time 2018/01/24 08:49:15	Database: Source Nar O Azure IoT: Connection Conn			Setting
2210/01/24 00:49:10				< Back Next > Cancel

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**.

	Data Field	*Table Field	Data Type	^
	<unit></unit>	<unit></unit>	String	
	<source_utc_timesta< td=""><td><source_utc_timesta< td=""><td>**String</td><td></td></source_utc_timesta<></td></source_utc_timesta<>	<source_utc_timesta< td=""><td>**String</td><td></td></source_utc_timesta<>	**String	
	<source_timezone></source_timezone>	<source_timezone></source_timezone>	Float	
1	<data_type></data_type>			=
	<server_utc_timesta< td=""><td></td><td></td><td>-</td></server_utc_timesta<>			-
7	<server_timezone></server_timezone>			
	<quality></quality>			
	<. length = 30; ". " []" are no			

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

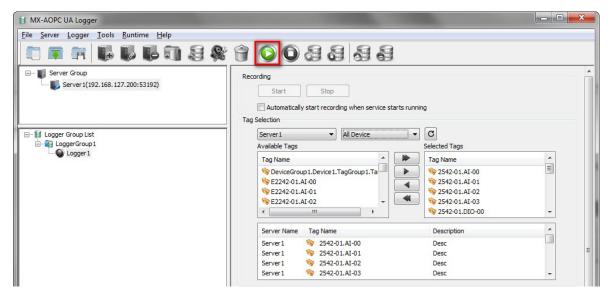
MX-AOPC UA Logger				x
<u>File Server Logger Tools Runtime Help</u>				
🗆 🗊 🖬 🖡 🖡 🖡 🗊 S 🛠		3 3		
	Recording Start Stop Automatically start recording whe Tag Selection Server1 All De Available Tags Tag Name			*
	Server Name Tag Name	Description	<u>,</u>	Ш
	Property Type: Excel Output: C:\Users\Public\Documents\ Table: Logger1	Moxa \MXAOPCLogger \Logger \Logger	1_20180124_005331	
	Data Field	Table Field	Data Type Order	
	<tag_id> <value> <unit> <source_utc_timestamp> <source_timezone></source_timezone></source_utc_timestamp></unit></value></tag_id>	<tag_id> <value> <unit> <source_utc_timestamp> <source_timezone></source_timezone></source_utc_timestamp></unit></value></tag_id>	String 1 String 2 String 3 DateTime 4 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			
□■ĦBBB18\$			
□	Recording Start Stop Automatically start recording when service starts	s running	
	Tag Selection		
E Logger Group List ⊡ ∰ Logger Group 1 Logger 1	Server 1 All Device Available Tags Tag Name ServiceGroup 1.Device 1.TagGroup 1.Ta ServiceGroup 1.Device 1.TagGroup 1.Ta ServiceGroup 1.Device 1.TagGroup 1.Ta ServiceGroup 1.Device 1.TagGroup 1.Ta ServiceGroup 1.Device 1.TagGroup 1.Ta ServiceGroup 1.Device 1.TagGroup 1.Ta ServiceGroup 1.Device 1.TagGroup 1.Ta ServiceGroup 1.Device 1.TagGroup 1.Ta	Selected Tags Tag Name Tag Name Selected Tags Selected	Ĩ
		© 2542-01.DIO-00	-
	Server Name Tag Name	Description	<u>^</u>
	Server1 😵 2542-01.AI-00 Server1 😵 2542-01.AI-01	Desc Desc	E
	Server1 😵 2542-01.AI-02 Server1 🧐 2542-01.AI-03	Desc Desc	-

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 Help</u>		
Server Group	Recording Start Stop Automatically start recording when service starts ru Tag Selection Available Tags Tag Name	C Selected Tags 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 👻

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.

HX-AOPC UA Logger File Server Logger Iools Runtime Help File Server Logger Iools Runtime Help	····	X
Server Group Server 1(192.168.127.200:53192) Server 1(192.168.127.200:53192) Logger Group List Logger Group List Logger 1	Recording Start Stop Automatically start recording when service starts running Tag Selection Available Tags Selected Tags Tag Name Tag Name	
	Server Name Tag Name Description	ш

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	a measure of the local division of the local	Contraction of the local division of the loc		- 0 - X
Eile Server Logger Iools Runtime Help				
G ♥ Server Group Server 1(192. 168. 127. 200: 53192)	Recording Start	Stop start recording when service star	ts running	
E- 월 Logger Group List ⊡ ⊉ LoggerGroup1 Logger1	Tag Selection Available Tags Tag Name	•	Selected Tags	
	Server Name Server 1 Server 1 Server 1	Tag Name	Description Desc Desc Desc	Â

- **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 Runtime Help</u>			
	1 O O 5 5	33	
🖃 💵 Server Group	Recording		*
ស Server 1(192. 168. 127. 200: 53192)	Start Stop		
		ding when service starts running	
	Tag Selection	ang when be vice bear or anning	
🖃 📲 Logger Group List	-		
	Available Tags	Selected Tags	
Logger1	Tag Name	Tag Name	
	Server Name Tag Name	Description	<u> </u>
	Server 1 👒 2542-0	01.AI-00 Desc	
	Server1 🧐 2542-0	01.AI-01 Desc	E
	Server1 🧐 2542-0	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			
<u>File Server Logger Tools Runtime Help</u>			
	1		
□ U Server Group	Recording Start Stop Automatically start recording when s	i service starts running	•
	Tag Selection		
E- St Logger Group List	Available Tags	C Selected Tags	
Logger1	Tag Name	Tag Name	
	Server Name Tag Name Server1 % 2542-01.AI-00 Server1 % 2542-01.AI-01	Description	Ш
	Server 1 😵 2542-01.AI-02 Server 1 🧐 2542-01.AI-02	Desc v	

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		
	1 0 0 2 3 3 3	
□- ■ Server Group □- ■ Server 1(192.168.127.200:53192)	Start Stop Automatically start recording when service starts run Tag Selection	ning
🖃 🦉 Logger Group List	· · · · · · · · · · · · · · · · · · ·	
EuggerGroup1	Available Tags	Selected Tags
Logger1	Tag Name 🕨	Tag Name
	Server Name Tag Name	Description
	Server1 % 2542-01.AI-00 Server1 % 2542-01.AI-01 Server1 % 2542-01.AI-02 Server1 % 2542-01.AI-03	Desc IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII
	Property Type: Excel Output: C:\Users\Public\Documents\Moxa\MXAOPCLogg Table: Logger1	er\k.ogger\k.ogger1_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.
- 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	Enable connection to	AOPC Server with heartbeat	t interval	30 sec(s	s)
🗎 I/O	Server Mode				
AOPC Server Connection Tag Selection	Single Server			1st AOPC Server	192 . 168 . 127 . 200
SNMP	Dual Servers			2nd AOPC Server	0.0.0.0
) Failover			Port	9900
Data Logging Profile	Retry Times	3			
ETP Click&Go Plus	Retry Interval	3 s	ec(s)		
᠃ ☐ Click&Go Plus	page.	data buffer can store up to 21 for recording tags in the dat			enable this function on the "Data Logging > Profile"

Settings	Click&Go Plus	Click&Go Plus Si	mulator	Peer-to-Peer		
System Security Network		nory size: 2 GB (: for network failures (r Device local time	equires 2 GB o	SD up to 32 GB) of memory) d time zone		
I/O AOPC Server Connection Tag Selection SNMP Modbus/TCP Slave Modbus/TCP Master Serial Port Stata Logging	No. Profile Name			Records per File		
Profile	Profile Settings Name Maximum 512 (Note: Maximum re	x 10,000 record		Reco	nable at Power rds 1	r On x 1,000 records (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 Plus	Click&Go Plus Click&Go Plus Simulator Pe			
E System	Select Module All		Select All Unselect All Apply to		
	I/O Type AI		•		
	Slot No.	Channel No.	Name	Description	On Change
Server Connection	Slot 00 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

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	Simulator	Pe	er-to-Peer		
System	General	VPN	Reconne	ection	Port Forwarding	DDNS	Cellular Data Access
Network General LAN	Enable Cellul	ar Data Access					
Cellular	IP Address	192 . 168 . 1	12 . 112				
SNMP Modbus AOPC	Port	9401					
 	Unique ID	0					
⊞ 🗎 Click&Go Plus	Heartbeat	30					

5. Update the device's configuration.

Moxa IOxpress - C:\Users\Public\Docume	nts\Moxa\IOx	press\Database\IOxpre	ess.prj				
Project Device Configuration Options	Help						
[🗊 🕱 🖷 🍇 🚔 🗟							
Device Library 2542-01 - 192, 168, 127, 253	Deplo	oyment					
	Update Cor	figuration to Device	•				
	Verwri	te Network Setting					
	tions Help Deployment Update Configuration to Device Overwrite Network Setting All Overwrite Network Setting Apply to All No. Device Name Model Name (Cellular) IP Address CDA IP Address MAC Address						
	🗖 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\Documen		press\Database\IOxpress.prj				
Project Device Configuration Options	Help					
🔲 🗖 🛱 📓 🗟						
Device Library 2542-01 - 192, 168, 127, 253	Deple	oyment				
	Set Device	Date & Time	•			
	Sync	with PC 💿 Manual Setting	Date: 2018	B/ 1/24 🗐 🔻 Time: 12	2:30:28 (UTC:)	
	All		 Apply 	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.

General Settings		
Retry Timeout	30	sec(s) (5 to 600, default: 30)
Retries	3	(0 to 10, default: 3)
Triggering Event		
Data suppleme	nt after network reconnection	
Data suppleme	nt on schedule	
Everyday at	00:00	
Data loss in th	ne past 1 dav(s) (1	to 7, default: 1)
🔽 Data suppleme	nt through Cellular Data Acces	s
Data suppleme	-	s
IP Address	0.0.0.0]
	0.0.0.0	s (0 to 65535, default: 9400)
IP Address	9400]
IP Address Port	9400	(0 to 65535, default: 9400)
IP Address Port Folder for supplem Path	0 . 0 . 0 9400 nentary data C:\Users\Public\Documents\W	(0 to 65535, default: 9400)
IP Address Port Folder for supplem Path	. 0 . 0 . 0 9400 nentary data	(0 to 65535, default: 9400)
IP Address Port Folder for supplem Path	0 . 0 . 0 9400 nentary data C:\Users\Public\Documents\W	(0 to 65535, default: 9400) 10xa\MXAOPCL

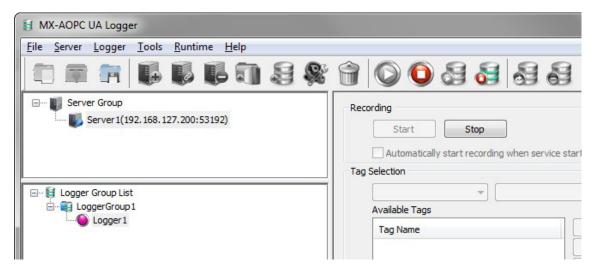
8. Ensure that the logger is in recording mode.

MX-AOPC UA Logger	and the second	
<u>File Server Logger Tools Runtime Help</u>		
	1 O O & & & &	
□- ■ Server Group Server 1(192.168.127.200:53192)	Start Stop Automatically start recording when service starts running	
🖃 😝 Logger Group List		
Electric Logger 1	Available Tags Selected Tags	
	Tag Name Tag Name	
	Server Name Tag Name Description	<u>^</u>
	Server1 😵 2542-01.AI-00 Desc	
	Server1 🧐 2542-01.AI-01 Desc	E
	Server1 🧐 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.

File Tools H	elp										
- Active D		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)	9 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:e8:21:07:91) Device Group List	9 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
modbus i		1 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
E- Cevi		1 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
	allagoroupi	\$ 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
		\$ 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
		\$ 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
		\$ 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
		1 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
		\$ 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
		\$ 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
		\$ 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.SvsConn	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
		1 2542-01.SvsMAC	Device MAC		00:90:E		UTC+8	13:54:58.818 2018/01/24	Read-only	Disconnected	2
Date	Time E	vent									
2018/01/24	13:56:20 T	ne tag DeviceGroup1.Device	1.TagGroup 1.Tag	1 changes the q	uality from Bad	to Disconnected					
2018/01/24	13:54:59 T	e tag 2542-01.SysConnect	-00 changes the v	alue from 1 to 0							
2018/01/24	13:54:59 T	ne tag 2542-01.SysIPAddres	s changes the gu	ality from Good	to Disconnected						
2018/01/24	13:54:59 T	ne tag 2542-01.SysMAC cha	nges the quality f	rom Good to Dis	connected						
2018/01/24	13:54:59 T	ne tag 2542-01.AI-03 chang	es the quality from	n Good to Discor	nnected						
2018/01/24	13:54:59 T	ne tag 2542-01.AI-02 chang	es the quality from	n Good to Discor	nnected						
2018/01/24		ne tag 2542-01.AI-01 chang									
2018/01/24	13:54:59 T	ne tag 2542-01.AI-00 chang	es the quality from	n Good to Discor	nnected						
2018/01/24		ne tag 2542-01.DIO-11 char									
2018/01/24		ne tag 2542-01.DIO-10 char									
2018/01/24	13:54:59 T	ne tan 2542-01.DIO-09 char	nes the quality fr	om Good to Disc	onnected						
4											

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.

MX-AOPC UA Logger				
<u>File Server Logger Tools</u>	<u>R</u> untime <u>H</u> elp			
		1003333		
	27.200:53192)	Recording Start Stop Automatically start recording when see	ervice starts running	
		Tag Selection		
E 😝 Logger Group List		Available Tags	Selected Tags	E
Logger 1		Tag Name	Tag Name	
		Server Name Tag Name Server1 % 2542-01.AI-00 Server1 % 2542-01.AI-01 Server1 % 2542-01.AI-02 Server1 % 2542-01.AI-03	Description Desc Desc Desc Desc Desc Desc	
			Desc	· · ·
Date Time	Event			
2018/01/24 13:59:44	Data supplement (Auto) end.			=
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 t	the device [MAC:00-90-e8-5a-21-6e].	
2018/01/24 13:59:42	Retrieving log 1/1 [from 2018/0	1/24 05:54:58 to 2018/01/24 05:58:41] from the c	levice [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 2018/0	1/24 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 t	the device [MAC:00-90-e8-5a-21-6e].	
2018/01/24 13:52:00	Retrieving log 1/1 [from 2018/0	1/24 05:02:33 to 2018/01/24 05:50:58] from the c	levice [MAC:00-90-e8-5a-21-6e]	
<				•
Service Status : Running Ti	me: 14:00:04		Data Supplement Queue: 0000	

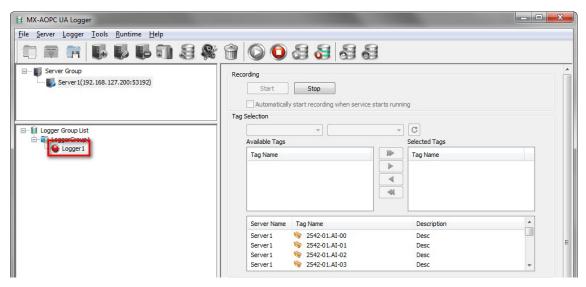
12. Open the database folder and note which files the supplementary data has been saved to.

G → V → Computer → V	Vindows7_OS (C:) → Users → Public → Documents → Moxa	► MXAOPCLogger ► Date	ataComplement 🕨 00	-90-e8-5a-21-(
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 KI
🚺 Downloads	2018-01-24-04-50-08_2018-01-24-05-59-48.csv	2018/1/24 下午 01:	Microsoft Excel C	66 K
😻 Dropbox	2018-01-24-04-50-08_2018-01-24-06-45-58.csv	2018/1/24 下午 02:	Microsoft Excel C	109 K

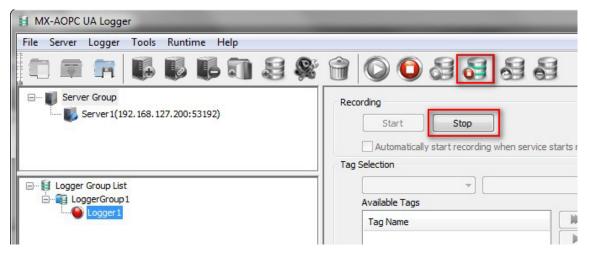
Testing the Data Supplement on Demand Function

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 ondemand period is one day in the past.

B MX-AOPC UA Logger		
Eile Server Logger Iools Runtime Help	* 1 0 0 3 3 3 3	
Gogger Group List JoggerGroup 1 Logger1	Data Supplement on Demand Start Date: 1/23/2018 ▼ Start Time (UTC): 7:36:35 AM ▼ Current Time (UTC): 2018/01/24 07:36:51	
Lugge I	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)	
	Start Date Start Time End Date End Time Result	
Date Time Event		
2018/01/24 15:34:31 Stop recording logger		
III Service Status : Running Time: 15:36:51	Data Supplement Queue: 0000	

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 Logge	er		10, 11, 100 p. 11	an a larger he						23
ile <u>S</u> erver <u>L</u> ogger	<u>T</u> ools <u>R</u> unti	me <u>H</u> elp								
	+ 0		8 🛠 🕯	$\bigcirc \bigcirc \bigcirc$	888	1 🏭				
Server Group	92.168.127.200:	53192)								
	C	Data Supplement	on Demand							
🖃 🗑 Logger Group List		Start Date: 1	/23/2018 👻	Start Time (UTC):	7:14:51 AM 🚔	Current Time (UT 2018/01/2407:1				
E- CoggerGroup 1)	End Date: 1	/24/2018 🔻	End Time (UTC):	7:14:51 AM 🚔	Retrieve	Close			
	· •			nents Woxa WXAOPC	Logger\Logger_on_[Demand				
		Timeout: 30 sec(s)	; Retries: 3 time(s) Start Time	End Date	End Time	Result				
		2018/01/23	07:14:51	2018/01/24	07:14:51	Retrieving				
Date Time										
2018/01/24 15:1	17:35					<u>.</u>				
018/01/24 15:1	L7:18									
	17:03							20180124_005331		
2018/01/24 15:1	17:02	Logger or oup theogy	er zi ooppiemerie oo		roy conception	Y 10100 Y 110101 0203		20180124_005331	Logger 1_2018	301
018/01/24 15:1	17:01	Retrieving log 1/3 [from 2018/01/23 07	:14:51 to 2018/01/24	104:27:37] from the	device [MAC:00-9	0-e8-5a-21-6e]			
2018/01/24 15:1	17:01	LoggerGroup 1.Logg	er1: supplement da	ta is saved to C:\Use	rs\Public\Documents	Moxa MXAOPCLog	ger\Logger\Logge	er 1_20180124_005331	Logger 1_2018	301
018/01/24 15:1	17:01	Connecting to the o	evice [MAC:00-90-e	e8-5a-21-6e] for retri	eving log from 2018,	/01/23 07:14:51 to	2018/01/24 04:2	7:37		
2018/01/24 15:1	17:01	Trying to connect to	the device.							
2018/01/24 15:1	17:01	Data supplement (D	emand) begin.							
• • • • • • • • • • • • • • • •			1 X 1							•
ervice Status : Running	Time: 15:	17.26				Det	Supplement Qu	0000		

5. Once the retrieving process is finished, the $\ensuremath{\textbf{Result}}$ column will show $\ensuremath{\textbf{Complete}}.$

tart Date:			Start Time (UTC):	7:18:17 AM 🌲	Current Time (UTC): 2018/01/2407:18:20 Retrieve Close	
End Date:			End Time (UTC):	7:18:17 AM		
og Folder:	C:\Users\Public\Documents\Moxa\MXAOPCLogger\Logger_on_Demand					
neout: 30 se	ec(s); Retries:	3 time(5)			
Start Date Star		īme 🛛	End Date	End Time	Result	
018/01/23	07:14:51		2018/01/24	07:14:51	Complete	

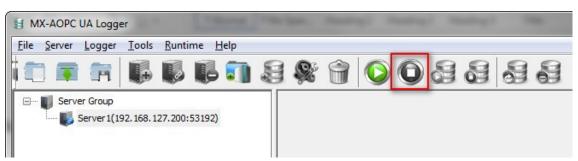
6. To check detailed information, see the Log View at the bottom of the screen.

MX-AOPC U	A Logger					
<u>File</u> Server L	ogger <u>T</u> ools	Runtime Help				
	F G	i i i i i i i i i i i i i i i i i i i				
⊡ ₩ Server	Group rrver 1 (192. 168. 12	7.200:53192)				
B-≨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	LoggerGroup1.Logger1: supplement data is saved to C:\Users\Public\Documents\Moxa\MXAOPCLogger\Logger\Logger1_20180124_005331\Logger1_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	LoggerGroup1.Logger1: 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	ie: 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> <u>Logger</u> <u>To</u>	ools <u>R</u> untime <u>H</u> elp			
	Data Supplement Settings			0
	Certificate Management			
Server Group	System Log	+		
	Change Password			
	Options			
Logger Group List				

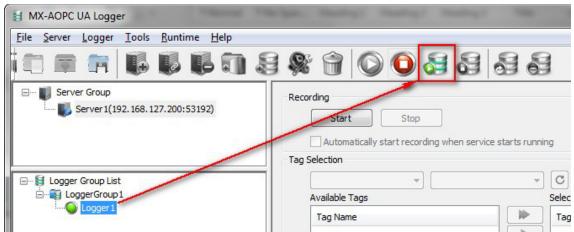
3. Enable the **Data supplement on schedule** function, set the time (UTC Time) to a few minutes later and data loss in the past to 1 day.

General Settings			
Retry Timeout	30	sec(s) (5 to 600, default: 30) (0 to 10, default: 3)	
Retries	3		
riggering Event			
🗸 Data suppleme	nt after network reconnection		
🗸 Data suppleme	nt on schedule		
Everyday at	18:15	(UTC time)	
Data loss in th	e past 1 day(s) (1	to 7, default: 1)	
Data suppleme	nt through Cellular Data Access	5	
🗌 Data suppleme	nt through Cellular Data Access	5	
Data suppleme	nt through Cellular Data Access	s	
		s (0 to 65535, default: 9400)	
IP Address Port	9400]	
IP Address Port	0 . 0 . 0 . 0 9400 entary data	(0 to 65535, default: 9400)	
IP Address	9400	(0 to 65535, default: 9400)	
IP Address Port Folder for supplem Path	0 . 0 . 0 . 0 9400 entary data C: \Users \Public \Documents \M	(0 to 65535, default: 9400)	
IP Address Port Folder for supplem Path	0 . 0 . 0 . 0 9400 entary data	(0 to 65535, default: 9400)	
IP Address Port Folder for supplem Path	0 . 0 . 0 . 0 9400 entary data C: \Users\Public\Documents\M	0 to 65535, default: 9400) oxa\MXAOPCLi (((((((((((((((((((

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	A Logger		
<u>File</u> <u>Server</u> <u>L</u>	ogger <u>T</u> ools <u>I</u>	<u>R</u> untime <u>H</u> elp	
	R B 1		📚 😭 🔘 🔂 🚑 🚑 🚑
	rver1(192.168.127	.200:53192)	Recording Start Stop Automatically start recording when service starts running Tag Selection Tag Selection C Available Tags Selected Tags Tag Name Tag Name
			Server Name Tag Name Description
Date	Time	Event	A
2018/01/28 2018/01/28	18:22:03 18:22:03	Data supplement (Sche Finished retrieving log	dule) end. (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		n 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		ze [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	18:21:37		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	18:21:36		: supplement data is saved to C:\Users\Public\Documents\Moxa\MXAOPCLogger\Logger\Logger1_20180124_005331\Logger1
2018/01/28	18:21:30		n 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		ze [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 th	
2018/01/28	18:21:29	Data supplement (Sche	
2018/01/28	18:20:33	Start recording all logg	er 🗸 🗸
<		III	Þ
Service Status : R	unning Tim	e: 18:22:27	Data Supplement Queue: 0000

3

Configuration Console

The following topics are covered in this chapter:

- Main Screen Overview
- Menu Items
 - ≻ 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	E.		
<u>File Server Logger Tools Runtime Help 2</u>			
i 🗆 🖛 🖛 🖡 🖡 🖡 🖓 🖓 🕷		3	
	Recording Start Stop Automatically start recording when service states Tag Selection		
🖃 🖷 🚼 Logger Group List	Server1	- C	=
E-Sector LoggerGroup1	Available Tags	Selected Tags	
5	Tag Name Image: Constraint of the system Image: Constraint of the system Image: Constraint of the system Image: Constraint of the system Image: Constraint of the system 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	Tag Name >>> 2542-01.AI-00 >>> 2542-01.AI-01 >>> 2542-01.AI-01 >>> 2542-01.AI-02 >>> 2542-01.AI-02 >>> 2542-01.AI-03 >>> 2542-01.DIO-00 Description Desc Desc Desc	
Date Time Event			
2018/01/28 16:33:13 Auto reconnect to Se 2018/01/26 23:14:33 Initializing database. 2018/01/26 23:14:33 LoggerGroup1.Logge	runtime service is stop. rver 1 success! (Service) r 1 is invalid. No tag is selected. runtime service is running.	7	
•			۱.
Service Status : Stopped 8 Time: 16:49:31 9		Data Supplement Queue: 0000 10	

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</u> Logger <u>T</u> ools <u>R</u> untime	<u>H</u> elp	
	New	Ctrl+N	
	Open	Ctrl+O	3 980
	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.

File S	erver Logger Too	ls Runtime Help
C	Discovery Connect Disconnect Delete Properties	112:53192)
	Logger Group List	

- **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> Server	<u>Logger</u> <u>T</u> ools <u>R</u> untime <u>H</u> elp	
	New Logger Group New Logger Delete	S
	Start Recording Stop Recording	
E St Logger	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.

<u>Eile Server Logger</u>	Tools Runtime Help	_
	Data Supplement Settings Certificate Management	
Server Group	System Log 🔹 🕨	
	Change Password	
	Options	

• Data Supplement Settings

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 reconnection	
Data suppleme	ent on schedule	
Everyday at	00:00	ī
Data loss in th	ne past 1 day(s) (1	to 7, default: 1)
Data suppleme	ent through Cellular Data Access	5
		s (0 to 65535, default: 9400)
IP Address Port	9400]
IP Address	9400]
IP Address Port	9400	(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)
IP Address Port Folder for supplem Path	0 . 0 . 0 . 0 9400 nentary data	(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 is 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 Certificates	S		
Server Nam	ie		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
Export Logger Certificate	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.

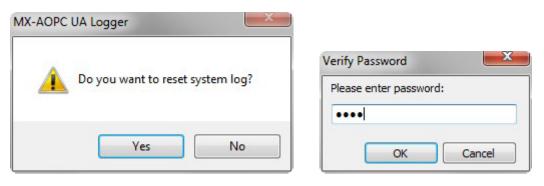
System Log

<u>File Server Logger To</u>	ools <u>R</u> untime <u>H</u> elp	
	Data Supplement Settings Certificate Management	
Server Group	System Log	Save to Text File
	Change Password	Reset System Log System Log Settings
	Options	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 Passwo	rd	×
Please enter p	password	l:
••••		
	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).

stem Log Setti	igs	×
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:	
Confirm Password:	
	OK Cancel

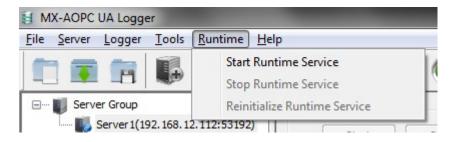
• **Options:** Configure environment settings for the MX-AOPC UA Logger's configuration console.

Configuration File		
Automatically save configuration every	10 🚔 min(s) (1 to	30, default: 10)
Automatically save configuration before	xiting this console	

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.

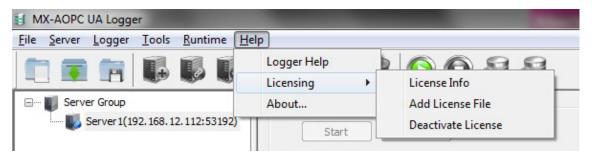


Help

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 M	X-AOPC	UA Logge	er				
<u>F</u> ile	Server	Logger	Tools	<u>R</u> untime	Help		
C	1				5	Logger Help Licensing	
 .		er Group				About	
	····· 🌆	Server1(19	92.168.1	2.112:5319	2)	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
	ОК

- 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.

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

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.

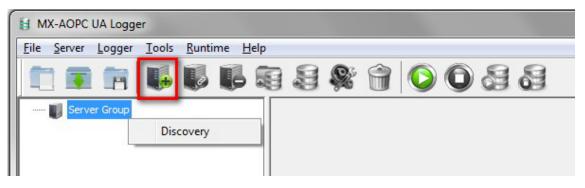
erver Endpoints Se	ttings	×
URL		Status
opc.tcp://192.168	.12.112:53192/MXAOPC/UAServer	Valid
Network Interface:	Intel(R) Ethernet Connection (3) I21	18-LM 👻
Port Number:	53192	
	opc.tcp://192.168.12.112:53192/MX	(AOPC/UAServer
	Add Delete	Apply Close

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.



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.



 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	x
۲	Local Server	
	opc.tcp://192.168.12.112:53192/MXAOPC/UAServer	
0	Remote Server Endpoint	
	Password ••••	
	< Back Next > Can	cel

 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.

covery Server			
	-		
Server Name	Server1		(max. length = 30; "." is not allowed)
Server Endpoint:	opc.tcp://192.168	3. 12. 112: 53	192/MXAOPC/UAServer
Security Policy	None		•
Security Mode	None		•
Subscription Settin	ngs		
Publish Interva	1000	r 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	10	×	(0 to 10000, default: 10)
Discard Oldes	t 🔽		
			< Back Finish Cancel

- 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.

H MX-AOPC UA Logger					
<u>File Server Logger Tools Run</u>	ntime <u>H</u> elp				
i 🗇 耳 🖬 🖪 🖪		1 🕵 😭 🚺	022	3 3	
	0:53192) Connect Disconnect Delete	Server Endpoint: Security Policy: Security Mode:	opc.tcp://192.168.127. None None	200:53192/MXAOPC/UAServer	
Cogger Group List	Properties	Subscription Settings Publish Interval:		Monitored Item Settin Sampling Interval:	
		Keep Alive Count:	10	Queue Size:	10
		Lifetime Count:		Discard Oldest:	
Date Time	Event			_	
< Service Status : Stopped Time: 1	III 8:38:41			Data Supplement Qu	Jeue: 0000
MX-AOPC UA Logger					
Eile <u>S</u> erver Logger Iools Rur	itime <u>H</u> elp		033	33	
Server Group Server 1(192, 168, 127, 20	0:53192)	Server Endpoint: Security Policy:	opc.tcp://192.168.127. None	200:53192/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.

Ele Server Logger Tools Builton Help Server Group Server Endpoint: opc.tgp://192.168.127.200:53192/MXAOPC/UAServer Server Brokpoint: opc.tgp://192.168.127.200:53192/MXAOPC/UAServer Server Brokpoint: opc.tgp://192.168.127.200:53192/MXAOPC/UAServer Server Endpoint: opc.tgp://192.168.127.200:53192/MXAOPC/UAServer Security Policy: None Security Mode: None Subscription Settings Monitored Item Settings Publish Interval: 1000 ms Lifetime Count: 10 Discard Oldest: Yes	MX-AOPC UA Logger		
Server Group Server Group Connect Disconnect Disconnect Disconnect Security Policy: None Security Mode: None Subscription Settings Monitored Item Settings Publish Interval: 1000 ms Ligger I Uifetime Count: 10 Discard Oldest: Yes			
Server 1(192: 166: 127, 200: 53192) Server 1(192: 166: 127, 200: 53192/MKAOPC/UAServer Security Policy: None Security Policy: None Security Mode: 1000 ms Lifetime Count: 1000 Discard Oldest: Yes	i 🗰 🖛 🖬 🔀 👪 🖬 🍇	i 🛠 📦 🔕 🥹 😂 😂 😂	
	Server Group Server 1(192, 168, 127, 200; 53192) Connect Disconnect Delete Properties	Server Endpoint: opc.tcp://192.168.127.200:53192/MXAOPC/UAServer Security Policy: None Security Mode: None Subscription Settings Monitored Item Settings Publish Interval: 1000 ms Keep Alive Count: 10 Queue Size: 10	
Service Status : Stopped Time: 18:48:44 Data Supplement Queue: 0000	2018/01/28 18:45:40 Connect to Server 1 :		

 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.

<u>File Server Logger T</u> ools	<u>R</u> untime <u>H</u> elp				
🗊 🗊 🖬 🐻		i 🕵 🔒 🕥	0223	8	
Server Group Server 1(192, 168, 12	27.200:53192)	Server Endpoint:	opc.tcp://192.168.127.200:53	192/MXAOPC/UAServer	
	Connect Disconnect	Security Policy:	None		
	Delete	Security Mode:	None		
Logger Group List LoggerGroup1 Logger1	Properties	Subscription Settings		Monitored Item Settings	
Logger		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 Run</u>	time <u>H</u> elp			
i 🗊 📭 📻 🎼 😺	6 1 2 😵 🔒 🤇	0333	8	
Server Group	D:53192) Server Endpoint: Connect Security Policy: Disconnect Security Mode: Properties ubscription Settin Publish Interval Keep Alive Count Lifetime Count	1000 ms	92/MXAOPC/UAServer Monitored Item Settings Sampling Interval: 500 Queue Size: 10 Discard Oldest: Yes	ms
Date Time	Event			
<	111			,
Service Status : Stopped Time: 1	8:52:13		Data Supplement Queue:	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	
<u>File Server Logger Tools Runtime Help</u>	
	* 1 0 0 2 2 2 2 2
□ ■ Server Group □ ■ Server 1(192. 168. 127. 200: 53192)	
Logger Group List New Logger Group Start Recording Stop Recording	
Date Time Event	
Service Status : Stopped Time: 18:55:07	Data Supplement Queue: 0000
	bas supplication Quede base

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

gger Group Prope	rty 💻
Logger Group Name	LoggerGroup 1
	(max. length = 30; "." is not allowed)
	OK Cancel

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

<u>F</u> ile <u>S</u> erver <u>L</u> ogger <u>T</u> ools <u>R</u> untime <u>H</u> elp			
	88 😭	$\bigcirc \bigcirc$	3333
Server Group Server 1(192.168.127.200:53192)	Logger Name	Туре	Output
Engger Group List	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.

MX-AOPC UA Logge	r			
<u>File</u> <u>Server</u> <u>Logger</u>	<u>T</u> ools <u>R</u> untime <u>H</u> elp			
i 🗖 🗖 🗖	GGGN	3 🙊 😭	\bigcirc	
	2. 168. 127. 200: 53 192)	Logger Name	Туре	Output
⊡ 😫 Logger Group List				
	Start Recording Stop Recording			

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.

	er <u>T</u> ools <u>R</u> untime <u>H</u> elp			
i 🗖 🗖 🗭		2 8 1	$ \mathbf{O}\mathbf{O} $	9999999
Server Group Server	1(192. 168. 127. 200: 53192)	Logger Name	Туре	Output
LoggerGro	oun1 New Logger			
	oun1			

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.

🛃 MX-AOPC UA Logger			
<u>File Server Logger T</u> ools <u>R</u> untime <u>H</u> elp			
i 🗊 🗰 📾 🕼 🕼 📾 🚺	E & O O A A A		
- ■ Server Group	Logger Name Type Output		
Date Time Event			
Date Tme 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.

.ogger Name Logger 1	gth = 30; only 20 if using Oracle Database)
	gar – 30, only 20 in dailing oracle balabasey
Excel File: Root Path:	C:\Users\Public\Documents\Moxa\MXAOPCLogger\Logger
File separated ev	very 60 🔻 min.(default: 60)
Access File:	
Root Path:	C: \Users \Public \Documents \Moxa \MXAOPCLogger \Logger
🔘 Database:	
Source Name:	Setting
O Azure IoT:	
Connection String	g:

- 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.

Data Field	*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>		
ax. 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_UTC_UTMESTAMP> and <SERVER_UTC_UTMESTAMP> and <SERVER_UTMESTAMP> and <SERVER_UTM
- **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 🗆 🖛 🖬 🗳 🖗 🖏 🕷	e e e e e e e e e e e e e e e e e e e
Server Group Server 1(192.168.127.200:53192)	Recording Start Start Stop Automatically start recording when service starts running
Cogger Group List	Tag Selection Server 1 All Device C Available Tags Selected Tags Tag Name Tag Name Selected Tags Tag Name
Start Recording Stop Recording Properties	Image: Space of the space o
	Server Name Tag Name Description
Date Time Event	
<	
Service Status : Stopped Time: 19:08:49	Data Supplement Queue: 0000

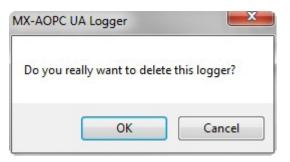
Deleting a Logger

Take the following steps to delete a logger:

- 1. Ensure the runtime service is stopped.
- 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 T</u>		
i 🗊 🖛 🛱 🛛		* 😭 🔾 🛈 Z Z Z Z Z
Server Group	168. 127. 200: 53 192)	Recording Start Name Start Start
En Stogger Group List		Server1 All Device C
	Delete Start Recording Stop Recording Properties	Available Tags Selected Tags Tag Name © 2542-01.A1-00 © 2542-01.A1-02 © 2542-01.A1-02 © 2542-01.A1-02 © 2542-01.A1-03
		Server Name Tag Name Description
Date Time	Event	
•	III	•
Service Status : Stopped	Time: 19:14:26	Data Supplement Queue: 0000

3. Click **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.

😝 MX-AOPC UA Logger	
<u>File Server Logger Tools Runtime Help</u>	
	1 🛠 😭 🔕 3 8 8 8 8 9 0 0
Server Group Server 1(192.168.127.200:53192)	Recording Start Start Stop Automatically start recording when service starts running Tag Selection
⊡… 😫 Logger Group List ⊡	Server 1 All Device Available Tags Selected Tags
Logger1	Tag Name Image: State of the state of th
	Server Name Tag Name Description
Date Time Event	
	,
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.

Server1	▼ All Device	- C	
vailable Tags		Selected Tags	
Tag Name	^	Tag Name	
🕸 DAC-01.AI-00			
S DAC-01.AI-01			
👒 DAC-01.AI-02			
😵 DAC-01.AI-03	-		
۰ [4	۰ III	•
Server Name Tag N	Name	Description	

- > . add all tags into the Selected Tags list.
- into the Selected Tags list.
- > _____: remove a selected tag from the Selected Tags list.
- > emoved 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	 All Device 		C	
Available Tags			Selected Tags	
Tag Name			Tag Name	*
			🥸 DAC-01.AI-00	
			🧐 DAC-01.AI-01	
			🧐 DAC-01.AI-02	
		the second se		
			🥸 DAC-01.AI-03	+
٠ [•		•
 ✓ ✓	III Tag Name	•	🥸 DAC-01.AI-03	
		•	S DAC-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 Logg	er					
<u>File</u> <u>Server</u> Logger	<u>T</u> ools <u>R</u> untime <u>H</u> elp					
i 🗇 📼 🖬	GGGG	8890) 0 3 8 8 8			
🖃 🗤 🚺 Server Group		Logger Name Typ	pe Output			
Server1(1	92.168.127.200:53192)	Logger1 Exe	cel C: {Users \Public \Documents \Moxa \MXAOPCLogger \Logger \Logger 1_20180128_110			
E-St Logger Group Lis	t New Logger Delete Start Recording Stop Recording Properties					
Date Tim	e Event					
Date Time Event 2018/01/28 19:17:58 LoggerGroup1.Logger1 sucessfully connected to database! 2018/01/28 19:17:58 Initializing database 2018/01/28 19:17:54 MX-AOPC UA Logger runtime service is running.						
•						
Service Status : Running) Time: 19:18:06		Data Supplement Queue: 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	
🖃 ··· 💵 Server Group	Logger Name	Туре	Output
Server 1(192.168.127.200:53192)	Logger 1	Excel	C: \Users\Public\Documents\Moxa\MX
Complete Complete Co			

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.

MX-AOPC UA Logger	
<u>File Server Logger Tools Runtime Help</u>	
Server Group Server 1(192.168.127.200:53192) Complete Logger Group List Complete LoggerGroup 1	Recording Start Stop Automatically start recording when service starts running Tag Selection Available Tags
Delete	Tag Name
Start Recording	
Stop Recording	
Properties	
Properties	

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 Server Logger</u>	<u>T</u> ools <u>R</u> untime <u>H</u> elp			
		3 🛠 🕯	\bigcirc	3 5 3 3
🖃 🗤 🗊 Server Group		Logger Name	Туре	Output
Server 1(192	Server 1(192.168.127.200:53192)		Excel	C: \Users\Public\Documents\Mo
E S Logger Group List	New Logger Delete			
	Start Recording			
	Stop Recording			
	Properties			

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.

Server Group Server 1(192.168.127.200:53192) Logger Group List Logger Group 1	Recording Start Stop Automatically start recording when service st Tag Selection	
Server Group Server 1(192.168.127.200:53192) Logger Group List Logger Group 1	Recording Start Stop C Automatically start recording when service st	
Server Group Server 1(192.168.127.200:53192) Logger Group List Logger Group 1	Recording Start Stop C Automatically start recording when service st	
- 😫 Logger Group List	Automatically start recording when service st	arts running
E LoggerGroup1		arts running
E LoggerGroup1		
E LoggerGroup1		
	Server 1	• C
Logger 1	Available Tags	Selected Tags
Coggeri	Tag Name	Tag Name
	PeviceGroup 1.Device 1.TagGroup 1.Ta Sector 2242-01.AI-00	2542-01.AL-01
	🧐 E2242-01.AI-01	🔪 2542-01.AI-02
	Second Se	Image: Symplectic state Symplecti
	Server Name Tag Name Server 1 😵 2542-01.AI-00	Description A
	Server1 👒 2542-01.AI-00 Server1 🧐 2542-01.AI-01	Desc
	Server 1 🧐 2542-01.AI-02	Desc
	Server1 🧐 2542-01.AI-03	Desc 👻
	Property	
	Type: Excel	
	Output: C:\Users\Public\Documents\Moxa\MXAO Table: Logger1)PCLogger (Logger 1_20180128_11084C
]		
ate Time Event		
	runtime service is stop. · group 'LoggerGroup 1'	
III		
vice Status : Stopped Time: 19:25:49		Data Supplement Queue: 0000
the second se	the second second second second	
Computer +	Windows7_OS (C:) ► Users ►	Public > Documents
Operation - Include in liber.	y ▼ Share with ▼ Ne	ew folder
Organize 🔻 Include in librar	y Share with VIN	
☆ Favorites	Name	*
	E .	
Mill Peccent Diacon	Logger1_201801	28_110000.xls
Recent Places		THE PARTY FOR THE PARTY OF THE
Downloads		

- **NOTE** Be sure to close the Excel or Access file at the target root path before starting to record. Otherwise, the MX-AOPC UA Logger will not be able to 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.
۲	Solid Gray	Configurable Mode	Any configuration change will be updated to the Logger's runtime service after starting the 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.
	Solid Green	Ready Mode	The logger is ready for recording.
	Solid Red	Recording Mode	The logger is recording.
	Solid Yellow	Error Mode – Configuration	The logger is not configured correctly, and data is not being saved to the database. Check the tag selection or database connection of the logger.
0	Flashing Red and Yellow	Error Mode – Server	A server related to some selected tags is disconnected. Check the server connection or server's Endpoint settings.
	Flashing Pink and Gray	Data Supplement Mode	The logger is retrieving supplementary data from device's buffer storage or supplementing data into the database.

License Registration and Activation

Two 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 version, you must submit a license registration. The free version only supports up to 1 MX-AOPC UA Server connection and up to 1 data logger indefinitely. The two 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

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.

License Info		
	User Code:	464EB14358CD
	License Status:	Free Version

The max. number of Server: 1	
The max. number of Logger: 1	

Step 2:

Go to Moxa's website (<u>https://www.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. Navigate to **Support** \rightarrow **Software License Management** to access the license portal.

ΜΟΧΛ	Products	Solutions	Support	How to Buy	Contact Us Partner Zone My Moxa About Us	Sign In
Defend Yo Networks	Product Support Software & Docume Product FAQs Security Advisories Software License M Software Life-cycle	entation	Repair & Warranty Product Repair Servic Warranty Policy		Resources Literature Library Case Studies Article Library	
LEARN MORE	Still need assistance	e with your Mox	a product? CONTACT US	>		

Step 3:

On the Software Licensing website, navigate to **Products and Licenses → Activate a Product License.** Select **MX-AOPC UA Logger** from Product Type, select **Free Version** from Sub Product Type, and enter the User Code.

Product Type	MX-AOPC UA Logger	~
Sub Product Type	Free License	~
User code	Enter your user code	
		Activate
		Activate
Products and License View Activated Prod		

Products and Licenses Download 3	50
View Activated Products	
Activate a Product License	l
Request an add-on or renewal License	
Activate an add-on or renewal License	
Transfer a Product License	

Step 4:

Download the license file to a folder on your PC.

Message n	otification
Your license has been activated, pleas below.	se download the license file from
Download	l know

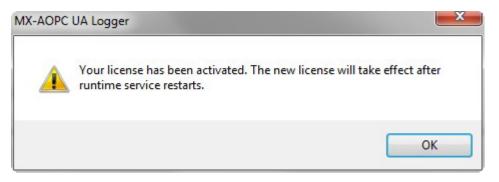
Step 5:

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.

<u> Eile S</u> erver <u>L</u> ogger <u>T</u> ools <u>R</u> untime <u>[</u>	lelp	
	Logger Help	AASS
	Licensing	License Info
🖃 📳 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.



464EB14358CD
Free Version
1
1
ОК



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 Turne	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.

 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	
odbcad32.exe	× Hibernate +
Documents	🕌 SysWOW64 🛛 🧔

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

er DSN	System DSN	File DSN	Drivers	Tracing	Connection Po	ooling	About
ystem D	ata Sources:						
Name	Driver					A	<u>I</u> d
						Ren	move
						Conf	igure
			ler. A Sy	stem data	tion about how source is visible		
	on this machi		- NIT	inen			

3. 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.

Microsoft Text Driver (*.txt; *.csv) 6 Microsoft Text-Treiber (*.txt; *.csv) 6 Microsoft Visual FoxPro Driver 1 Microsoft Visual FoxPro Driver 1 Microsoft Visual FoxPro-Treiber 1 ODBC Driver 11 for SQL Server 2 SQL Server 6 SQL Server Native Client 11.0 2	 Select a driver for which yo	u want to set up a da	ata source.
4	Microsoft Text-Treiber (*.b Microsoft Visual FoxPro D Microsoft Visual FoxPro-Ti ODBC Driver 11 for SQL S SQL Server	kt; *.csv) Iriver reiber Server	6 1 1 2
	< III		4

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 So	urce to SQL Server
	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
Ferring Contents	
	Finish Next > Cancel Help

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

DBC Microsoft SQL Server Setup	×
A new ODBC data source will be created with the following configu	uration:
Microsoft ODBC Driver for SQL Server Version 12.00.2000	*
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 Null, Paddings and Warnings: Yes Server Service Principle Name(SPN):	
Mirror Server Service Principle Name(SPN):	~
Test Data Source OK Ca	n <mark>cel</mark>

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

Iser DSN	System DSN	File DSN	Drivers	Tracing	Connection	Pooling	About
System D	ata Sources:						
Name	Driver					A	dd
MSSQL	ODBC Driver	11 for SQL S	erver			Re	move
						Conf	igure
	An ODBC System the indicated on this machi	data provide	er. A Sys	stem data			

 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: Image: Imagement Image: Imagement Image: Image: Image: Imagement Image: Imagement Image: Im	Window Help
Object Explorer	▼ ₽ ×
Connect 👻 🍟 🎽 🍸 🖒 🚸	
 CHARLESCHEN-NB (SQL Server 1 Databases Security Logins ##MS_PolicyEventProc ##MS_PolicyTsqlExect 	cessingLogin##
	-
NT Service\MSSQL	New Login
NT SERVICE\SQLSE	Script Login as
NT SERVICE\Winm	Policies
sa 🖌	Facets
	Start PowerShell
🕀 💼 Cryptographic Provide	Reports +
🕀 🛑 Audits	Rename
 E Server Audit Specificati Server Objects 	Delete
E Replication	
🕀 💼 Always On High Availabilit	Refresh
🕀 📕 Management	Properties
🕀 📕 Integration Services Catalogs	

8. Ensure the default database is master.

Login Properties - NT AUTHC	DRITY\SYSTEM			
Select a page	🖵 Script 🔻 😯 Help			
 Server Roles User Mapping Securables Status 	Login name: Windows authentication SQL Server authentication Password: Confirm password: Specify old password Old password: Enforce password policy Enforce password expiration User must change password Mapped to certificate 	tion	YSTEM	Search
Connection	Mapped to asymmetric key			T
\ \	Map to Credential			▼ Add
v¥ <u>View connection properties</u>	Mapped Credentials	Credential	Provider	
Progress				Remove
Ready	Default database:	master		-
44 B.W	Default language:	English		•
			0	K Cancel

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

Login Properties - NT AUTHO	RITY\SYSTEM	- 0 ×
Select a page	🖵 Script 🔻 😮 Help	
 Server Roles User Mapping Securables Status 	Server role is used to grant server-wide security privileges to a user. Server roles: bulkadmin docreator diskadmin processadmin serveradmin setupadmin sysadmin sysadmin	
Connection		
₩ <u>View connection properties</u>		
Progress		
Ready		
		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	IORITY\SYSTEM			• X
Select a page	🖵 Script 🔻 😮 Help			
Server Roles User Mapping	Users mappe <u>d</u> to this login:			
✗ Securables	Map Database User Default Schema			
👂 Status	master	NT AUTHORITY\SYS	dbo	
	model			
N 1	msdb			
	tempdb			
Connection	Guest account enabled Database role membership f db_accessadmin db_backupoperator db_datamader.			
v¥ <u>View connection properties</u>	db_datareader db_datawriter db_ddladmin db_denydatareader db_denydatawriter			
Progress	db_owner			
Ready	db_securityadmin ✔ public			
			ОК	Cancel

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

Logger Name Logger 1 (max. length = 30; only 20 if using Oracle Database) Image: C:\Users\Public\Documents\Moxa\MXAOPCLogger\Logger Output Folder: C:\Users\Public\Documents\Moxa\MXAOPCLogger\Logger If is separated every or min.(default: 60) Access File: Root Path: C:\Users\Public\Documents\Moxa\MXAOPCLogger\Logger Output Folder: Image: Source Name: Setting Connection String: Setting	Logger Settings	
<pre>(max. length = 30; only 20 if using Oracle Database) (max. length = 30; only 20 if using Oracle Database) Excel File: Root Path: C:\Users\Public\Documents\Moxa\MXAOPCLogger\Logger File separated every 60 * min.(default: 60) Access File: Root Path: C:\Users\Public\Documents\Moxa\MXAOPCLogger\Logger Output Folder: Output Folder: Source Name: C:\Users\Public\Documents\Moxa\MXAOPCLogger\Logger Setting</pre>		
 Excel File: Root Path: C:\Users\Public\Documents\Moxa\MXAOPCLogger\Logger Output Folder: Logger1_20180128_110840 File separated every min.(default: 60) Access File: Root Path: C:\Users\Public\Documents\Moxa\MXAOPCLogger\Logger min.(default: 60) Access File: C:\Users\Public\Documents\Moxa\MXAOPCLogger\Logger min.output Folder: Database: Source Name:	Logger Name	Logger 1
Root Path: C:\Users\Public\Documents\Moxa\MXAOPCLogger\Logger Output Folder: Logger1_20180128_110840 File separated every 60		(max. length = 30; only 20 if using Oracle Database)
Output Folder: Logger1_20180128_110840 File separated every 60 min.(default: 60) O Access File: Root Path: C:\Users\Public\Documents\Moxa\MXAOPCLogger\Logger Output Folder: Output Folder: Source Name: Setting Azure IoT: Setting	C Excel F	ile:
File separated every 60 Min. (default: 60) Access File: Root Path: C: \Users \Public \Documents \Moxa \MXAOPCLogger \Logger Output Folder: Output Folder: Source Name: Azure IoT:	Root	Path: C:\Users\Public\Documents\Moxa\MXAOPCLogger\Logger
 Access File: Root Path: C:\Users\Public\Documents\Moxa\MXAOPCLogger\Logger Output Folder: Database: Source Name: Azure IoT: 	Outpu	ut Folder: Logger1_20180128_110840
Root Path: C:\Users\Public\Documents\Moxa\MXAOPCLogger\Logger Output Folder: Image: Source Name: Setting Image: Azure IoT:	File se	eparated every 60 min.(default: 60)
Output Folder:	Access	File:
Database: Source Name: Azure IoT:	Root	Path: C:\Users\Public\Documents\Moxa\MXAOPCLogger\Logger
Source Name: Setting	Outpu	ut Folder:
O Azure IoT:	Oataba	ise:
	Sourc	e Name: Setting
Connection String:	O Azure I	ioT:
	Conne	action String:
< Back Next > Cancel		< Back Next > Cancel

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

Data Source Name	Туре	Description
dBASE Files Excel Files MS Access Database MSSQL	User User User System	
"User" data sources are sp	ecific to a us	New s machine, and cannot be shared. er on this machine. "System" data 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.

13. 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 Hame			
	(max. len	gth = 30; only 20 if using Oracle Database)	
C Excel F	ile:	·	
Root	Path:	C: \Users \Public \Documents \Moxa \MXAOPCLogger \Logger	
Outpu	ut Folder:	Logger1_20180128_110840	
File se	eparated ev	very 60 win.(default: 60)	
Access	File:		
Root	Path:	C:\Users\Public\Documents\Moxa\MXAOPCLogger\Logger	
Outpu	ut Folder:		
Oataba	ise:		
Source	e Name:	MSSQL	Setting
🔘 Azure I	loT:	19 19	
Conne	ection String	g:	