MX OPC Configurator

Quick Start Guide







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MELSOFT Integrated FA Software

MX OPC Configurator

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INTRODUCTION

Thank you for choosing the Mitsubishi MELSOFT Series Integrated FA software. Read this manual and make sure you understand the functions and performance of MELSOFT series thoroughly in advance to ensure correct use.

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1 Introduction to MX OPC Server

The MX OPC Server 6.04 is a Mitsubishi I/O driver OPC Data Access (DA) and Alarm/Events (AE) server that provides the interface and communications protocol between a wide range of Mitsubishi hardware and your process control software. Mitsubishi drivers incorporate the following attributes to provide flexibility and ease-of-use:

OLE for Process Control (OPC) compliance.

The MX OPC Server consists of the following components:

- MX OPC Configurator
- MX Runtime

The MX OPC Server complies with version 3.00 of the OLE for Process Control (OPC) Data Access standard, version 1.01 of the OPC XML Data Access standard, and version 1.01 of the OPC Alarm and Events standard. Any OPC client application can access process hardware data through the I/O Server.

1.1 Compatibility with Former Versions

The MX OPC Server 6.04 is fully backward compatible with previous versions (4.20, etc.). The configuration databases from all previous versions can be used. The MX OPC Server 6.04 Configurator provides an automated conversion from the older configuration database into the current structure. All the database content will be preserved and converted into the new structure if needed.

The MX OPC Server 6.04 configuration database cannot be used in the previous versions.

The MX OPC Server does not support importing of CSV configurations generated by a different version. Although this process is partially successful in some versions, the 6.04 version will not import a CSV file created before version 6.04 due to major changes in the database structure.

To preserve the configuration, the user can import the CSV file to a MDB database using the original configurator, upgrade the MDB database using the MX OPC Server 6.04 configurator and then export to CSV.

1.2 What Is OLE for Process Control

OLE[™] for Process Control (OPC) is a standards-based approach for connecting data sources (e.g., PLCs, controllers, I/O devices, databases, etc.) with HMI client applications (graphics, trending, alarming, etc.). It enhances the interface between client and server applications by providing a universally supported and well-documented mechanism to communicate data from a data source to any client application. Included are not only a detailed guide on how to pass the data, but also specific information on other attributes to supplement those data, such as range information, data type, quality flags, and date and time information. The figure below shows the OPC Architecture, which was introduced by the OPC Foundation. By following the OPC Architecture, a device needs only one standard driver, which is an OPC-compliant server. All OPC-compliant client applications can then be connected to that device, either locally or over a network. Furthermore, connections can be made to more than one OPC server at the same time.



OPC-Based Client-Server Architecture

Any OPC client application can connect to any OPC server. In other words, OPC offers true Plug-and-Play capability in the fields of HMI and industrial automation. OPC server types include OPC Data Access (DA), OPC Alarm and Events (AE), and OPC Historical Data Access (HDA).

1.3 MX OPC Runtime

The MX OPC Runtime maintains the driver's communication channels, devices, and data tags, performs all required functions for communicating with the process hardware, and exposes the methods and properties to other applications.

In addition to performance improvements, the MX OPC Runtime provides the following functionality:

- Supports OLE for Process Control (OPC)
- · Provides local configuration and control
- · Supports telephone modem communication
- · Provides phasing
- · Enables or disables Individual devices and tags
- Provides QuickFail Logic
- Provides latched data
- · Provides a time/date stamp for data and alarms
- · Supports individual bit reads
- Provides advanced diagnostics.
- MX Component.

1.4 MX OPC Configurator

The I/O Driver Configurator is a client application to the I/O Server with a graphical user interface. The MX OPC Configurator accesses the I/O Server and lets you view and modify properties of communication channels, devices and data tags.

The MX OPC Configurator provides the following:

- The server connection only local I/O Server.
- The tree control for an overall view of your system configuration.
- A Statistics View for displaying the statistics of your I/O driver while it is running. Statistics are provided for devices.
- A Configuration View for displaying and modifying device and tag properties.
- A Monitor View for displaying real-time data tag values during runtime mode.
- An interface to the MXComponent Communication Setting Wizard for importing or creating new configurations.
- Support for telephone modem communication.
- Templates for configuring default alarm settings.
- Simulation for tags and alarms using a built-in function pattern.

1.5 OPC client software

The OPC server has been tested with a range of client software. The table below shows which data types are supported by each one.

Data type	RSview	LabView 8	iFIX 3.5	InTouch v9	Genesis32 v8
BOOL	✓	\checkmark	✓	✓	✓
WORD	Note 2	✓	Note 2	✓	✓
DWORD	Note 3	✓	Note 1	Note 1	✓
UINT	Note 2	✓	Note 2	✓	✓
UDINT	Note 3	\checkmark	Note 3	Note 1	✓
INT	✓	\checkmark	✓	✓	✓
DINT	✓	✓	Note 4	✓	✓
REAL	✓	✓	✓	✓	✓
STRING	✓	\checkmark	✓	✓	✓
Bit notation .	✓	✓	✓	✓	✓
Array notation []	✓	✓	✓	✓	✓
Arrays	Note 5	✓	Note 5	Note 5	\checkmark
n-based arrays	Note 5	Note 5	Note 5	Note 5	Note 6

Notes

- 1. Supports this type only for values in signed DINT range 0..2147483647
- 2. Supports this type only for values in signed INT range 0..32767
- 3. Does not support unsigned 32-bit values
- 4. Does not read the correct value in all cases
- 5. This type of array variable is not fully supported use of array notation [] is recommended instead.
- 6. When writing n-based arrays from OPC data spy, additional elements must be supplied for elements from 0 to the start of the array. For example, to write two values to an array of size 2 with lower bound 3, use '0,0,0,1,2'.

In the event of problems getting client software to read values from the OPC server, try the following:

- Select the native type of the OPC tag instead of using the default, e.g. set the requested data type to 'boolean' for BOOL tags, etc.
- Ensure that any scaling in the client package is set up correctly for the possible values of the OPC tag.
- Use array element notation (e.g. 'Item[0]) to read array elements, instead of trying to read the whole array tag.

1.6 Installing MX OPC Server

This section describes the steps for installing the MX OPC Server. Be sure to close any other applications before installing MX OPC Server.

There are two separate parts to the software:

- The MX OPC runtime module, which reads data from the device
- The MX OPC configurator, which defines the data to be read

The MX OPC Server runtime module can optionally be installed as a service. Services run automatically in the background whenever the computer is started; they do not rely on a user logging in to the computer to start the program manually.

1.6.1 System Requirements

To use MX OPC Server 6.04, your computer must meet the following minimum system requirements:

- 233 MHz processor
- 512 MB RAM
- 100 MB disk space
- 8x speed CD-ROM drive
- VGA video card (256 or more colors for best results)
- One of the following operating systems:
 - Windows® 8 (32-bit or 64-bit)
 - Windows® 7 (32-bit or 64-bit)
 - Windows® Server 2008 (R2)
 - Windows® XP with Service Pack 3
 - Windows® 2003 Server

Performance will improve with higher specification hardware (faster data updates).

Note: Only versions of Microsoft Windows that accommodate Unicode character sets are supported.

1.6.2 Installation Procedure

The following steps detail the MX OPC Server installation:

Note: If your operating system (e.g., Windows NT) requires a login name, you must log in with administrator capability before installing MX OPC Server.

- 1. Before installing the software, be sure that all other applications are closed and/or disabled.
- 2. Insert the product CD into your CD-ROM drive. If the option to start CDs automatically is enabled in your operating system, the CD introduction starts automatically. Otherwise, browse to your CD-ROM drive and run the program "Setup.exe".
- 3. If you are installing on Windows Vista or later operating systems, you may see a warning prompt similar to the one below. Click **Allow** or **Yes** to continue the installation.

User Account Control	-23
In unidentified program wants access to your comp	outer
Don't run the program unless you know where it's from or you've used it before.	
Setup.exe Unidentified Publisher	
 Cancel I don't know where this program is from or what it's for. 	
Allow I trust this program. I know where it's from or I've used it before.	
🕑 Details	
User Account Control helps stop unauthorized changes to your computer.	

Account control prompt

4. You will be prompted to install some additional required software if it is not already installed on your computer. Click 'Install' to continue.

Status	Requirement
ending	Microsoft .NET Framework 3.5 Microsoft .NET Framework 3.5 SP1
Pending	Microsoft Visual C++ 2010 SP1 Redistributable Package (x86)
ending	Microsoft Visual C++ 2010 SP1 Redistributable Package (x64)

Install additional required software

On later operating systems (such as Windows 8) you may be prompted to install additional Windows features. If so, select 'Download and install this feature'.

Win	dows Features	
An app	on your PC needs the following Windows feature:	
.NET Fr	amework 3.5 (includes .NET 2.0 and 3.0)	
😚 Do Wi	ownload and install this feature ndows will get the files that it needs from Windows Update and complete the tallation.	
→ Sk	ip this installation	
Yo <u>Tell me r</u>	ur apps might not work correctly without this feature.	Cancel

Install Windows features

When the features have finished installing, you will see the screen below. Click 'Close' to return to the installer.

💿 🖪 Windows Features	
The following feature was successfully installed: .NET Framework 3.5 (includes .NET 2.0 and 3.0)	
You might need to restart apps that require this feature.	
	Close

Windows features installed

5. At the Welcome screen (shown in the figure below), click the Next button to continue.



Welcome Screen

6. The Software License Agreement dialog box appears, as shown in the figure below. Read the License Agreement. Click Next if you accept the terms of the agreement.

License Agreement		
Please read the following licens	se agreement carefully.	
ENDUSER LICENSING AGE	REEMENT for the MELSOFT se	oftware package
The software package con software without prior con and subject to prosecution	ntains software under copyrig nclusion of this licensing agre n by MITSUBISHI ELECTRIC E	ght. Use of the eement is illegal
licensing agreement is co ENDUSER SOFTWARE SE between MITSUBISHI ELE hereinafter referred to as	ncluded upon the user signir RVICE CARD. This agreemen CTRIC EUROPE B.V. and the "Licensee".	ng the enclosed t is concluded enduser,
licensing agreement is co ENDUSER SOFTWARE SE between MITSUBISHI ELE hereinafter referred to as	Notice of the user signing and the user signing and the action of the second se	t is concluded enduser,
licensing agreement is co ENDUSER SOFTWARE SE between MITSUBISHI ELE hereinafter referred to as By means of this agre I accept the terms in the license	Northe Angle	ELIROPE B V
licensing agreement is co ENDUSER SOFTWARE SE between MITSUBISHI ELE hereinafter referred to as By means of this agre I accept the terms in the license I do not accept the terms in the	CARD. This agreemen CTRIC EUROPE B.V. and the "Licensee".	ELIRODE R V
licensing agreement is co ENDUSER SOFTWARE SE between MIT SUBISHI ELE hereinafter referred to as By means of this agre I accept the terms in the license I do not accept the terms in the stallShield	CONCLUDED UPON THE USER SIGNIN RVICE CARD. This agreemen CTRIC EUROPE B.V. and the "Licensee". Dement MITSUBISHI ELECTRIC e agreement e license agreement	ELIROPE B V

Software License Agreement

7. The Customer Information dialog box appears, as shown in the figure below. Enter your name, your company's name, and your product serial number. Click Next to continue, and confirm your registration information.

Customer Information	
Please enter your information.	
User Name:	
Windows User	
Organization:	
Serial Number:	
Please type in "DEMO" into the first field of the Serial Number to	
Instali a functional limited Demo Version.	

Entering Customer Information

8. The Choose Destination Location dialog box appears, as shown in the figure below. Choose the destination location for the software installation. If you wish to keep the default location, click the Next button to continue. If you prefer to select a different directory location for the installation, click the Change button to select a different drive or directory. Click Next to continue.

Destinat Click Ne	ion Folder xt to install to this folder, or click Change to install to	a different folder.
D	Install MX OPC Server 6.04 to: C:\MELSEC\MX OPC Server 6.04\	Change

Choosing the Destination Location

9. The **Setup Type** dialog box appears, as shown in the figure below, giving you the option to install MX OPC Server as a Windows service. Select **Yes** or **No**, and then click the **Next** button to continue.

Service				
Do you want MX OPC Se	erver 6.0 <mark>4 to b</mark> e i	nstalled as a serv	ice?	
🔘 Yes Please install I	1X OPC Server 6.	04 as a Service		
No				
tallShield				1.57

Option to Run MX OPC Server as a Service

10. Click **Install**, as shown in the figure below, to begin installing the files. MX Component, EasySocket and MXChange server will also be installed.

Note: You can click Cancel to stop the installation procedure at any time.

岗 MX OPC Server 6.04 - InstallShield Wizard	X
Ready to Install the Program	
The wizard is ready to begin installation.	
Click Install to begin the installation.	
If you want to review or change any of your installation settings, click Ba exit the wizard.	ack. Click Cancel to
InstallShield	
A Issential Incluing State	Cancel

Ready to install

11. During the installation, depending on your operating system you may see a warning similar to the one below prompting you to install the necessary drivers. Select 'Install' or 'Yes' when prompted.

Windows Security	X
Would you like to install this device software?	
Name: Jungo Publisher: MITSUBISHI ELECTRIC CORPORATION	
Always trust software from "MITSUBISHI ELECTRIC CORPORATION".	Install Don't Install
You should only install driver software from publishers you trust. <u>software is safe to install?</u>	How can I decide which device

Driver installation prompt

12. After all files and components have been installed, click the **Finish** button to complete the installation, as shown in the figure below. If you installed MX OPC server as a service, you will also be given the option to configure the service immediately. After choosing whether to configure the service now or later, click the **Finish** button.

U	InstallShield Wizard Completed
	The InstallShield Wizard has successfully installed MX OPC Server 6.04. Click Finish to exit the wizard.

Installation Complete

13. You may be prompted to restart your computer before using the product. If a prompt similar to the one below is shown, either select **Yes** to restart immediately (and force all other running applications to close) or **No** to close other applications and restart manually.

🖓 МХ ОР	C Server 6.04 Installer Information	X
i)	You must restart your system for the configuration changes made to MX OPC Server 6.04 to take effect. Click Yes to restart now or No if you plan to restart later.	
	Yes No	

Restart prompt

1.6.3 Configuring the service

When the OPC server is installed as a service, it can be useful to configure it to run using a specific user account. The 'OPC enumeration' EXE is also installed as a service. In this section, the 'OPC enumeration' EXE will be used as an example, but the same method applies when the OPC server settings are changed.

First, open the 'services' page:

Windows XP, Windows 2000 or Windows Server 2008 R2: select 'Start' -> 'Run', enter 'Services.msc' in the dialog that appears and click 'OK'.

Run	? 🛛
	Type the name of a program, folder, document, or Internet resource, and Windows will open it for you.
Open:	services.msc
	OK Cancel Browse

Windows 7 or Windows Server 2008 R2: click the Windows icon, then enter 'Services.msc' in the search box and press enter.

services.r	nsc	×	Shut down	•
9	é	0		

Windows Vista: click the start button, then enter 'Services.msc' in the search box and press enter.

services.msc	Ċ	•
🎝 Start 📃 🏉		

If a 'User account control' prompt like the one below is shown, click 'Continue'.

Iser Account (iontrol vs needs your permissio	on to continue	
If you started	this action, continue. Microsoft Management Co Microsoft Windows	onsole	
<u> </u>		<u>C</u> ontinue	Cancel
Details	ontrol helps stop unauthoriz	<u>Continue</u> red changes to your	computer.

The remaining screens are similar for all operating systems.

Find the service to be changed in the list. The sample screen below shows the OPC enumeration service.

Services						
File Action View	Help					
← → 💽 😭 🕻) 🖪 😰 🕨 🗉 💷					
Services (Local)	🎭 Services (Local)	-				
	OpcEnum	Name 🔺	Description	Status	Startup Type	
		🏶 Network Provisionin	Manages XML configur		Manual	
	Start the service	NT LM Security Sup	Provides security to re		Manual	
		CpcEnum			Manual	
		Performance Logs a	Collects performance d		Manual	
		🎇 Plug and Play	Enables a computer to	Started	Automatic	~
		<)				>-
	Extended Standard /					

Right click on the service name and select 'Properties'. The service configuration screen (below) will be shown.

OpcEnum Prope	rties (Local Computer)	? 🗙
General Log On	Recovery Dependencies	
Service name:	OpcEnum	
Display name:	OpcEnum	_
Description:		~
Path to executab	e:	
C:\WINDOWS\s	ystem32\OpcEnum.exe	
Startup type:	Manual	~
Service status:	Stopped	
Start	Stop Pause Resum	e
You can specify I from here. Start parameters:	he start parameters that apply when you start the ser	
	OK Cancel	Apply

General Log I	On Recovery Dependence	cies
Log on as:		
Local Syst Allow s	em account ervice to interact with deskto	p
🔿 This acco	unt:	Browse
Password:		
Confirm pa	ssword:	
Confirm pa You can enat	ssword: le or disable this service for t rofile	he hardware profiles listed below: Service
Confirm pa You can enab Hardware F Profile 1	ssword: le or disable this service for t rofile	he hardware profiles listed below: Service Enabled
Confirm pa You can enat Hardware F Profile 1	ssword: le or disable this service for t rofile	he hardware profiles listed below: Service Enabled Enable

Switch to the 'Log On' tab, select 'This account' and enter the username and password of the user to run as.

Now select 'OK' and close the services window.

1.6.4 Rebooting the PC

In the situation where MX OPC Server is running on a PC, which needs to be rebooted or switched off, we suggest following the instructions below:

- 1. Start the MXConfigurator application and stop the MX OPC server
- 2. Close the MXConfigurator application and disconnect all clients from the MX OPC Server runtime application

This procedure needs to be followed due to the fact that the MX OPC Server runtime accesses the MSACCESS runtime database functions. In the situation where the PC is switched off while the MX OPC server is simultaneously accessing the database, there can be damage or data may not be accessible.

1.7 MX OPC Server Quick Start

The objectives of this Quick Start section are to:

- 1. Start the MX OPC Configurator.
- 2. Set up the driver.
- 3. Set up a communication channel.
- 4. Create and configure a new device.
- 5. Create and configure a new data tag.
- 6. Start the I/O Server driver.
- 7. Connect to the server using OPC DataSpy.

1.7.1 Starting the MX OPC Configurator

Once you have installed MX OPC Server, start the MX OPC Configurator:

- From the Windows Start menu, select [All] Programs > MELSOFT Application > MX OPC Server 6.04 > MX OPC Configurator. Note: The name of the program folder may vary depending on your local settings (e.g. language
- settings).
 2. This opens the Configurator for the MX OPC Server, as shown in the figure below. The screen consists of a split window with a tree control view in the left-hand pane and a configuration view in the right-hand pane. The Configurator provides a default standard configuration database called



MXConfigurator.mdb, which contains a sample configuration project.

Configurator Screen

The MX OPC Configurator is a client of the MX OPC Runtime that accesses the I/O Server and lets you view and modify properties for devices and data tags. The Address Space tree control in the Configurator sets the properties and connection parameters for the following hierarchy of server objects:

- **Devices:** A device is a hardware device or station that uses the I/O driver to communicate with a client PC. The device item contains the properties and methods that govern the behavior of a device. A device is visible to the OPC client.
- Data tags: A data tag is an object that makes device data accessible to OPC clients. Data tags can be logically organized into groups (folders).

1.7.2 Setting Up the Driver

The table below provides a general overview of the steps necessary for setting up your I/O driver.

1 Know your process hardware:

- What device does the driver communicate with?
- What type of cable are you using?
- What is the station number for each device?
- What addresses do you want to access and what data do you want to retrieve?

2 Know the hardware parameters:

Example for serial communication

- COM Port
- Baud Rate
- Stop Bits
- Data Bits
- Parity

3 Choose the method of configuration:

Use the MX OPC Configurator

4 Configure the I/O Driver:

Configuring Communication Channels Configuring devices Setting default values for driver, channels, devices and tags Configuring tags

5 Check the I/O Driver Status:

Using monitoring mode

1.7.3 Creating Communication Channels

In the following examples, we will create and configure new channels for both the Serial and Ethernet communication paths.

Serial Communication Channel

To create a new Serial communication path:

1. Right-click the Address Space tree control of the Configurator screen and select **New MX Device** from the pop-up menu, as shown in the figure below.



Adding a New MX Device

2. The MX Transfer Setup dialog will be shown. You can either select an existing transfer setup, or (as in the example below) select <*New...>* to create a new transfer setup.

MX Transf	fer Setup fer setup	Ethernet	×	Configure Comm. Test
	Ethernet	<new> <rename remov<="" th=""><th>Ve></th><th></th></rename></new>	Ve>	
PC I/F	Ethernet	CPU type	Q25PH	
Protocol	UDP	Module type	QJ71E71	
Network No	1	Host(IP Address)	192.168.20.250	
Station No	15	Network No	1	
Port No	5001	Station No	1	
Time-out	1000 ms			
		Multiple CPU	None	

MX Transfer Setup dialog

3. The **New Transfer Setup** dialog will appear. Enter a name for the new transfer setup (*Serial* in the picture below) and select <*Default...*> as the template, then click **OK**.

New Setup	
Name	
Serial	
Copy Settings from	
<default></default>	~
	OK Cancel

Entering a transfer setup name

4. The new transfer setup can now be edited using the Communication Setting Wizard, as shown in the figure below. Specify the communication type to use on the PC side, as shown in the figure below. In the PC Side I/F field, select the Serial connection type from the drop-down list. By default, you will only see the physical COM ports that are actually available on your computer. If you are preparing a configuration to be used on another computer which has different COM ports, check the All ports box to show a full list of possible serial ports. After entering the details, click Next to continue.

MX Transfer Setup Wizard - PC	side	X
	Please select the PC side I/F PC side I/F Serial · · Communication setting Connect port COM1 · · All Ports Time out 10000 ms	
Cancel	< Back Next >	

Setting up a Connection for the PC Side

5. Now you must specify the communication type to use on the PLC (device) side, as shown in the figure below. In the PLC Side I/F field, select a communication type from the drop-down list as the connection type to use for the selected channel. Click **Next** to continue.

MX Transfer Setup Wizard - Pl	LC side Please select the PL PLC side I/F	C side I/F PU module	<u> </u>	
	CPU series CPU type Transmission speed	Q Q02(H) 9600	۲ ۲	ps
	Control	DTR or RTS Co	ntrol	×
Cancel	< Back Nex	t>		

Setting up the Connection for the PLC Side

6. Select the network **Station Type** and **CPU Type** (if applicable) from the respective drop-down lists, as shown in the figure below. Click **Next** to continue.

MX Transfer Setup Wizard - Netw	ork		×
	Please select the Network Station type	Host station	~
	Multiple CPU	None	~
Cancel	< Back Next >]	

Configuring Network Settings

7. Click the **Finish** button to complete the communication channel setup, as shown in the figure below.

MX Transfer Setup Wizard - I	inished 🔀
	The Communication wizard has finished collecting information. Press 'Finish' to store the modified settings and to close the wizard. Comment Password
Cancel	< Back Finish

Completing Channel Setup

8. The MX Transfer Setup dialog box appears with the new transfer setup selected, as shown in the figure below. Each network node is shown graphically, with the node properties shown under the graphic. The left-hand side of the dialog lists the configuration properties for the PC side. You can double-click the image of a node (or double-click the properties list) to edit the configuration properties. The right-hand side of the dialog lists the configuration properties for the PLC device side. You can double-click the image of the PLC device (or double-click the configuration properties list) to edit the PLC device side. You can double-click the image of the PLC device (or double-click the configuration properties list) to edit the PLC device side configuration properties. You can also click the **Configure** button to return to the **Communication Setting Wizard**. Click the **OK** button to save the changes.

MX Tran	sfer Setup			
Select trar	nsfer setup	Seriàl	×	Configure Comm. Test
	Serial			
PC I/F	COM1	CPU type	Q02(H)	
Time-out	10000 ms	Transmission speed	9600 bps	
		Control	DTR or RTS	
		Multiple CPU	None	
				OK Cancel

MX Transfer Setup dialog (configured)

Note: For complete information about channel configuration properties and the **Communication Setting** Wizard, see "Configuring the address space" in the user documentation.

Ethernet Communication Channel

To create a new Ethernet communication path:

1. Right-click the **Address Space** tree control of the Configurator screen and select **New MX Device** from the pop-up menu, as shown in the figure below.



Adding a New MX Device

2. The MX Transfer Setup dialog will be shown. You can either select an existing transfer setup, or (as in the example below) select <*New...>* to create a new transfer setup.

PC I/F COM1 CPU type Q02(H) Time-out 10000 ms Transmission speed 9600 bps Control DTR or RTS	Select trar	nsfer setup	Serial Serial	×	Configure Comm. Test
PC I/F COM1 CPU type Q02(H) Time-out 10000 ms Transmission speed Control DTR or RTS Multiple CPU None		Serial	<new> <rename remove<="" th=""><th>9> k</th><th></th></rename></new>	9> k	
Time-out 10000 ms Transmission speed 9600 bps Control DTR or RTS Multiple CPU None	PCI/F	СОМ1	CPU type	Q02(H)	
Control DTR or RTS Multiple CPU None	ïme-out	10000 ms	Transmission speed	9600 bps	
Multiple CPU None			Control	DTR or RTS	
			Multiple CPU	None	

MX Transfer Setup dialog

3. The **New Transfer Setup** dialog will appear. Enter a name for the new transfer setup (*Ethernet* in the picture below) and select <*Default...>* as the template, then click **OK**.

New Setup	
Name	
Ethernet	
Copy Settings from	
<default></default>	~
	OK Cancel

Entering a transfer setup name

4. The new transfer setup can now be edited using the **Communication Setting Wizard**, as shown in the figure below. Specify the communication type to use on the PC side, as shown in the figure below. In the **PC Side I/F field**, select the **Ethernet board** connection type from the drop-down list. Select a module number from the **Connect module** drop-down list. Click **Next** to continue.

MX Transfer Setup Wizard - PC s	ide		X
	Please select the PC side I/F Communication se Connect module Protocol Network No	e PC side I/F Ethernet board v tting QJ71E71 UDP v 1	
Cancel	Station No Port No Time out	2 5001 1000 ms Next >	

Setting up the Connection for the PC Side

5. Now you must specify the communication type to use on the PLC (device) side, as shown in the figure below. In the PLC Side I/F field, select Ethernet module from the drop-down list as the connection type to use for the selected channel. Specify a Host name and a Port number. Click Next to continue.

MX Transfer Setup Wizard	PLC side	×
Cancel	Please select the PLC side I/F PLC side I/F Ethernet module Communication setting Module type QJ71E71 Host(IP Address) 192.168.20.250 Network No 1 Station No 1 Station No 1	
Curror		

Setting up the Connection for the PLC Side

6. Select the network **Station Type** and **CPU Type** (if applicable) from the respective drop-down lists, as shown in the figure below. Click **Next** to continue.

MX Transfer Setup Wizard - N	etwork		×
	Please select the Netwo	ork	
	Station type	Host station	~
	Connect CPU series	Q	*
	CPU type	Q02(H)	~
	Multiple CPU	None	¥
Cancel	< Back Next >		

Configuring Network Settings

7. Click the **Finish** button to complete the communication channel setup, as shown in the figure below.

MX Transfer Setup Wizard - I	inished 🔀
	The Communication wizard has finished collecting information. Press 'Finish' to store the modified settings and to close the wizard. Comment Password
Cancel	< Back Finish

Completing Channel Setup

8. The MX Transfer Setup dialog box appears with the new transfer setup selected, as shown in the figure below. Each network node is shown graphically, with the node properties shown under the graphic. The left-hand side of the dialog lists the configuration properties for the PC side. You can double-click the image of a node (or double-click the properties list) to edit the configuration properties. The right-hand side of the dialog lists the configuration properties for the PLC device side. You can double-click the image of the PLC device (or double-click the configuration properties list) to edit the PLC device side. You can double-click the image of the PLC device (or double-click the configuration properties list) to edit the PLC device side configuration properties. You can also click the **Configure** button to return to the **Communication Setting Wizard**. Click the **OK** button to save the changes.

MX Transf	ier Setup				Þ
Select trans	fer setup	Ethernet	*	Configure	Comm. Test
	Ethern	et a			
PC I/F	Ethernet	CPU type	Q02(H)		
Protocol	UDP	Module type	QJ71E71		
Network No	1	Host(IP Address)	192.168.20.250		
Station No	2	Network No	1		
Port No	5001	Station No	1		
Time-out	1000 ms				
		Multiple CPU	None		
				<u> </u>	

MX Transfer Setup dialog (configured)

Note: For complete information about channel configuration properties and the Communication Setting Wizard, see "Configuring the address space" in the user documentation.

1.7.4 Configuring a New Device

In the previous section, we used the **Communication Setting Wizard** to set up Serial and Ethernet communication channels between the PC and PLC. Once you have completed the wizard:

1. The **Basic** tab of the **Device Properties** dialog box appears, as shown in the figure below. The communication type (e.g. Serial, Ethernet, etc.) is shown in the **PC Side I/F** field, as shown in the figure below.

Device Propertie	s	×
Basic Advanced	Tuning	_
Name: Desc.:	Dev01	
Primary Device -		
	Configuration	
PC Side I/F:	Serial	
Comment:		
L	Save Save & New Cancel	

Configuring Device Properties

2. In the **Name** field, type a name for the new device, and type a description for the device (optional). To specify which connection type and which physical connection (COM) port to use for the selected device, click the **Configuration** button to launch the Communication Setting Wizard for the Primary device.

3. Click on the **Advanced** tab to set the advanced parameters for the **Primary** and **Backup** devices, as shown in the figure below.

evice Propertie	5		
Basic Advanced	Tuning		
Primary Device –			
🔽 Enable Dev	vice	Simula	ate
Beolu timeout:	1000	Number of	3
Delay time:	000 ms	Merge gap:	64 words
	~ IIIs	16	words
Max count for H/N	v operation.	1.0004	
Backup Device -	vice	Config	uration
Backup Device - Enable Dev PC Side I/F:	vice	Config	uration
Max count for RAX Backup Device - V Enable Dev PC Side I/F: Comment:	vice	Config	uration
Max count for RAX Backup Device - V Enable Dev PC Side I/F: Comment:	vice <none> 1000 ms</none>	Config Config	uration
Max count for RAX Backup Device V Enable Dev PC Side I/F: Comment: Reply timeout:	vice <none> 1000 ms 0 ms</none>	Config Number of retries: Merge gap:	uration 3 64 words

Device Properties: Advanced Tab

Check the Enable Device check box to activate the device.
 Note: For complete information about device configuration properties, see "Configuring the address space" in the user documentation.

5. When you have finished configuring the device properties, click the **Save** button. The new device appears under the **Address Space** tree control, as shown in the figure below.



New Device Created for the Channel

Note: For complete device configuration properties info, see "Configuring the address space" in the user documentation.

1.7.5 Creating Data Tags

Now you can create a new data tag that the OPC clients can request from the server.

Note: Data tags can be logically organized into **groups** (folders). You can configure as many folders as required. You can even create subfolders for each group to create a hierarchical organization of tags. See "Groups" in the user documentation section "Configuring the address space" for details.

To create a new tag:

1. Right-click on a device in the tree control of the Configurator screen and select **New Data Tag** from the pop-up menu, as shown in the figure below.

File Edit View	Go Tools Help		1
Active Configurat	ion: C:\MELSEC\f	MXConfigurator.md	lb 🔒
D 🗃 🔶	🔶 🔁 🖌 🖻	B P	
Address 9	ipace	Name 🔺	1
5	New Group	Ctrl+F	15
Alarm D	New DataTag	Ctrl+L	
Simulatic	Rename		
(i) and (in the	N 1 L L		1.7

Adding a New Data Tag

2. The **Basic** tab of the **Data Tag Properties** dialog box appears, as shown in the figure below.

Tag Properties	
Basic Advanced	Alarms Multiply
Name: Desc.:	Tag001
General Setup —	
1/0 Address:	M0 Browse
Access Rights:	Read, Write 💌
Data Type:	BOOL
Data Polling Poll. Method:	1000ms
Sa	ve Save & New Cancel

Configuring Data Tag Properties

- 3. In the Name field, type a name for the new tag, and type a description for the tag (optional).
- 4. Set the parameters for the I/O Address and data Access Rights.

5. Click on the Advanced tab. Check the Enable Tag check box to activate the tag.

ag Properties	
Basic Advanced	Alarms Multiply
General Setup —	
	🔽 Enable Tag
Data Conversion	
	Swap word/byte order
	Convert to word (32 bits <> 16 bits)
Conversions	
CONVERSION.	KNOLASSIGNED
Data Type	
	Use Advanced Types
Data Type:	Array of BOOL
Number of Elements:	20 Lower 0
Deadband:	0
Simulation ——	
	Simulate
Simulation Signal:	<not assigned=""></not>
	Use Manual Value
Manual Value:	False (Off)
S	ave Save & New Cancel

Data Tag Properties: Advanced Tab

- 6. Set the Data Conversion and Data Type parameters for the tag.
- 7. In the Alarms tab of the Tag Properties dialog box, you can check the Generate Alarms check box to make the server generate a limit alarm and/or a digital alarm based on the data item value.
- 8. When you have finished configuring the tag properties, click the **Save** button. The new tag appears under the **Device** tree control.
 - **Note:** For complete information about data tag configuration properties, see "Data tags" in the user documentation section "Configuring the address space".

1.7.6 Starting the MX OPC Runtime Driver

Once you are finished with your device and data tag configuration, you can start the MX OPC Runtime driver by clicking the Start button (green triangle icon) on the Standard toolbar of the MX OPC Configurator. This enables client/server communication. To stop the driver, click the Stop button (red square icon) on the Standard toolbar, as shown in the figure below.

MXConfigurator.mdb - MX OPC Confi	gurator			
File Edit View Go Tools Help				
Active Configuration: C:\MELSEC\OPC database	es\MXConfigurator.mdb			
🗅 🖨 🗢 🖮 👗 🖻 🛱 🏪 🗄	- 🌐 🛗 😭 🚱	r 🕨 📮 💡 🙄		
🖃 🖓 🖻 Address Space 🛛 🚺 Device Name 🔺	Description	13	Enable	PC Side IF
🕀 🛄 Dev01		Stop	Yes	Serial
🕀 🛄 Dev02 👘 🚺 Dev02			Yes	Serial
Alarm Definitions				
Simulation Definit				
🗆 🖾 Conversion Defir 🔽				
				>
Stops the MX IOServer		2 Object(s) selected		

Starting and Stopping the Driver

1.7.7 Connecting to the Server Using OPC DataSpy

Introduction to OPC DataSpy

With the introduction of the OPC Foundation Plug and Play communications standard called OPC Data Access, and recently the OPC Alarm and Events Specifications, a universal diagnostics and analysis utility was needed by industry. This need is filled with OPC DataSpy.

Features of OPC DataSpy

OPC DataSpy includes the following key standard features:

- Internet OPC over TCP/IP tag browsing.
- GenBroker Monitor.
- Simple-to-use OPC test client inspection and diagnostics utility.
- Determination of whether server is OPC compliant.
- Available as a stand-alone OPC test client.
- OPC Data Access (DA) test client.
- OPC Alarm and Events (AE) test client.
- OPC Data Access troubleshooting tool.
- OPC Alarm and Events troubleshooting tool.
- OPC-compliance testing of third-party servers.
- Determination of OPC standards for OPC servers.
- OPC loading and OPC traffic analysis.

The main concept behind the OPC DataSpy is to provide an easy-to-use OPC Test Client to test, diagnose, and troubleshoot industrial applications using the OPC Foundations, OPC Data Access, and Alarm and Events specifications.

The OPC DataSpy tree control capability consists of three main parts:

- 1. OPC Item Browsing
- 2. OPC Data and Alarm Monitors
- 3. GenBroker Monitor

The OPC item browser mode allows you to browse for OPC-compliant Data Access and OPC Alarm and Event servers, as well as OPC Historical Data Access servers, and to provide basic information allowing users to view, test, and troubleshoot any OPC third-party servers. The OPC monitors provide real-time monitoring of OPC server data.

The OPC DataSpy user interface consists of the following elements:

- OPC Item browser
- OPC Data and Alarm Monitors
- Diagnostics and statistics and logging module (output window)

Once the MX OPC Runtime driver is running, you can connect to the MX OPC Server via OPC DataSpy. For this Quick Start, you will use OPC DataSpy provided with the MX OPC Server installation:

- Open OPC DataSpy from the Windows Start menu by selecting [All] Programs > MELSOFT Application > MX OPC Server 6.04 > OPC Data Spy > DataSpy.exe. This opens OPC DataSpy, as shown in the figure below.
 - **Note:** The name of the program folder may vary depending on your local settings (e.g. language settings).



OPC DataSpy Screen

 From the left navigation pane, expand the "OPC Items" item by clicking on the "[+]" symbol to the left of the icon. Expand the "My Computer" section then the "OPC Data Access" section then the "Mitsubishi.MXOPC.6" section.

Users will then see all configured devices listed underneath "Mitsubishi.MXOPC.6" and can browse groups and data tags accordingly.

- 3. Right click on any selected tag listed beneath "Mitsubishi.MXOPC.6" and click on "Monitor". Next, click on "Data Monitor" that is listed underneath OPC Items when that section is fully collapsed. In the right navigation pane, users will be able to see the values associated with selected tags.
- 4. If your client application does not support reading a single bit within a word or reading one element of an array, you may still be able to use these features by changing the name of the item that you add.

To access a bit within a word, define a new tag with an address such as D12.1 (bit 1 within the word at address D12, with bit numbering starting a 0 for the least significant bit) and set the type to BOOL. If write access is not required, a client can also address a bit within a word tag using the item syntax "tagname.bitNr" (e.g. tagname.0 for bit 0) - this is a read-only custom "OPC property" of the tag item.

A client can address a single element of an array tag using the item syntax 'arraytag[elemNr]' (e.g. arraytag[2] for element 2).

5. To Write to Tags, right-click on the tag name in the right navigation pane. The "Enter a Value" dialog pops up. Users can then enter values in the text entry box.

So Untitled - ICONICS OPC DataSpy for Mitsubishi	Electric		
File Edit View Go Action Tools Help			
D 🖆 🖬 📖 🗲 🔶 🏦 🗗 🛱 🗳 🕽	• 🏥 🏢 🗗 🗖 🗛 🦓		
P 2 OPC Items	Name	Source	Value
My Computer OPC Data Access OPC Data Access Mitsubishi.MXOPC.6 Opvice Statistics Opvi	Mitsubishi.MXOPC.6\Dev01.Tag001	OPC	<empty> (VT</empty>
Desidu			NIL ISA
кеаду			

Note: If you are writing a floating point value, the period (.) character is always used as the radix character (e.g. '123.4' not '123,4'). If you are writing to an array item, the values should be separated by commas (,).

Enter a Value	X
Value to Write: Vite an EMPTY Variant Write a NULL Variant	
OK	Cancel

MEMO

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MX OPC Configurator

Quick Start Guide



Specifications subject to change without notice.



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