Changes for the Better

MITSUBISHI ELECTRIC

Mitsubishi Programmable Controllers
MES Interface Module
Quick Start Guide

CONTENTS

FURTHER READING REFERENCE LIST

The following manuals are also related to this product.
If necessary, order them by quoting the details in the list below.

Manual Name	Manual Number (Model Code)
MES Interface Module User's Manual	SH-080644ENG (13JR95)
MES Interface Module User's Manual (Hardware)	IB-0800354 (13JY02)
QCPU User's Manual (Hardware Design, Maintenance and Inspection)	SH-080483ENG (13JR73)
QCPU User's Manual (Function Explanation,Program Fundamentals)	SH-080484ENG (13JR74)
GX Developer Version 8 Operating Manual	SH-080373E (13JU41)

CHAPTER 1 INTRODUCTION

The MES interface enables simple, highly reliable data connectivity between automated machinery and manufacturing-related computing applications, such as Manufacturing Execution (MES) and Production Control (PCS), These applications depend on correct data collection and timely delivery. Compared to conventional connectivity implemented using gateway computers, direct database connectivity implemented using the MES Interface will decrease system complexity, improve reliability and eliminate data loss, resulting in better agility, less maintenance and reduces total cost of ownership (TCO).

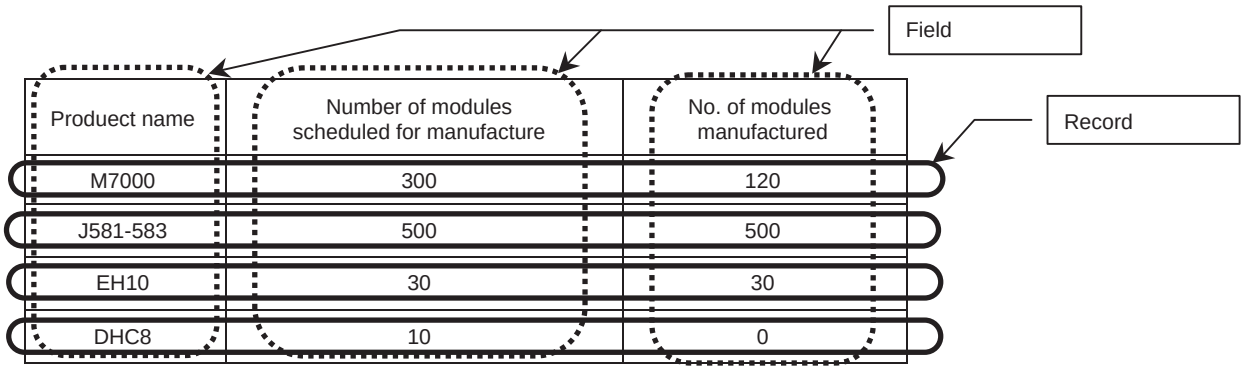
This guide aims to provide an introductory guide to setting up the MES Interface Module. The guide is broken down into an example system, setup, and maintenance sections. For further reading, please refer to the associated users and hardware manuals provided by Mitsubishi Electric.

1.1 Database Overview

This section provides general information on databases that the MES Interface uses as a source or destination for information exchanged with MELSEC controllers.
For this example, a database is defined as software which provides a virtual filing system for storing groups of related data. It also provides a set of commands that enable access, editing and manipulation of the stored data. The following are some examples of practical functions that may occur in a database.

- During processing of a set of data items, an error occurs. In response, the user might apply a rollback command that restores the data to its original state.
- While certain stored data items are being retrieved in one process, new data arrive that need to be stored in a second process. The database should handle completion of both actions without conflict or user intervention.
- A researcher desires to retrieve a specific set of 15 data items that was originally stored in the database on July 15th at 2:30 AM 5 years ago. The user will create a “query” or command structure that the database understands as a request for data retrieval. The database will return the specified information when the query is executed.

There are various database types including relational, hierarchical, and XML. The MES Interface operates with relational databases provided by Microsoft or Oracle. Relational databases organize data into tables consisting of fields (columns) and records (rows). The contents in one database can range from one table to many thousands.



All common databases implement a standardized command format called SQL (Structured Query Language). SQL defines each command action a user can apply to operate the various database functions and the syntax for the command and response messages paragraph change.
The MES Interface implements certain of these commands. For Acquiring data stored in a record one uses a “Select” command. For placing data in a record one uses the “Insert” command. For placing modified data in existing records one uses the “Update” command. Of many SQL commands available, these three cover direct data exchange between controllers and databases. Creation of tables, deletion of records and all other database operations must be implemented outside the MES Interface.

Initial Table Structure

Part Number	Production Plan	Production Actual
M7000	300	120
J581-583	500	500

(1) Add a new record to the table that has part number, production schedule and production actual fields (Insert command executed via the production scheduling software)

Part Number	Production Plan	Production Actual
M7000	300	120
J581-583	500	500

Inserting data →

Part Number	Production Plan	Production Actual
M7000	300	120
J581-583	500	500
EH10	**30**	**0**

(2) After execution, add the production actual count to the record (Update command executed by the MES Interface - moves production count from the controller to the database)

Part Number	Production Plan	Production Actual
M7000	300	120
J581-583	500	500
EH10	30	**0**

Updating data →

Part Number	Production Plan	Production Actual
M7000	300	120
J581-583	500	500
EH10	30	**12**

Final Table Structure

1.2 MES Interface Module Overview

The MES Interface provides a highly reliable and easy to implement method for exchanging data between MELSEC Q controllers or GOTs and common “industrial quality” databases. Most Manufacturing Execution Software Applications use a database to source data and deposit results. The product is named "MES Interface", because it greatly improves MES implementation and operation by providing a high quality, high function link to the factory equipment.
Setup of the MES functions is made using PC-based configuration software. For most applications, no computer language programming or control logic programming is required. The person making setup need not know SQL language or XML language, because setup is made in a menu driven format and deeper technical aspects are handled automatically. The idea is that standard engineering or IS staff can easily handle initial setup and subsequent modification of the MES Interface configuration.

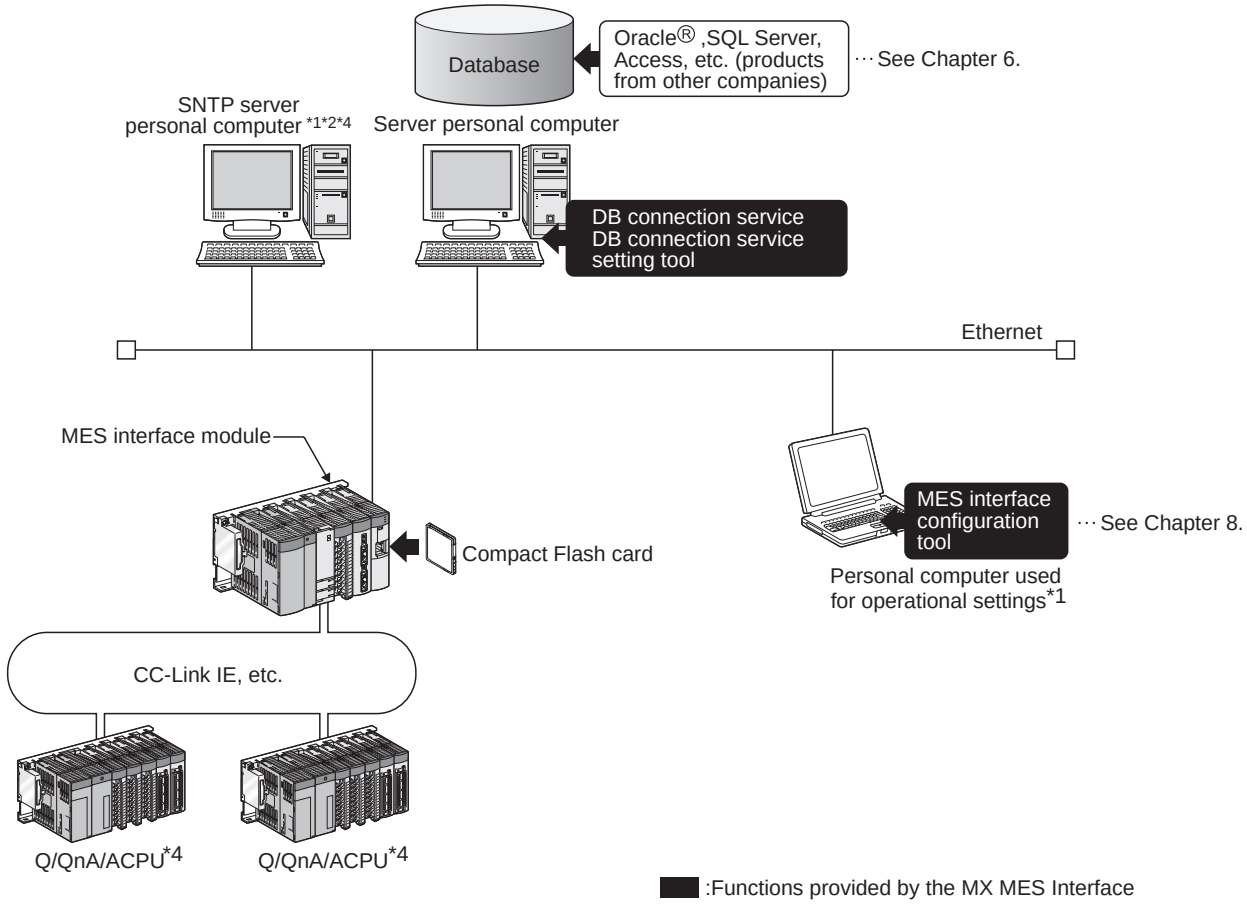
The general setup procedure is simple.

1) Associate (map) controller data devices to the appropriate fields or records in the database table(s)
2) Set trigger conditions under which data are to be collected and transferred
3) Build transactions associating triggers with the specific data and action

The MES Interface provides enhanced functions beyond simple data transfer that provide significant benefits. Store and forward buffering of transactions (when the database connection is lost) supports zero data loss and guaranteed information delivery. One MES Interface can transact data with up to 32 database connections and it can route communications to remote MELSEC systems via CC-Link IE, MELSECNET 10/H, Ethernet, and CC Link, including support for legacy controller lines. Communications between the MES Interface and the host computer system occur in a secure, encrypted format and the messages exist in XML format, which is well suited to passage through common IT infrastructure devices such as firewalls, routers and switches. Automatic time adjustment to an SNTP server keeps time stamps and database sequencing accurate.

MES interface basic system configuration

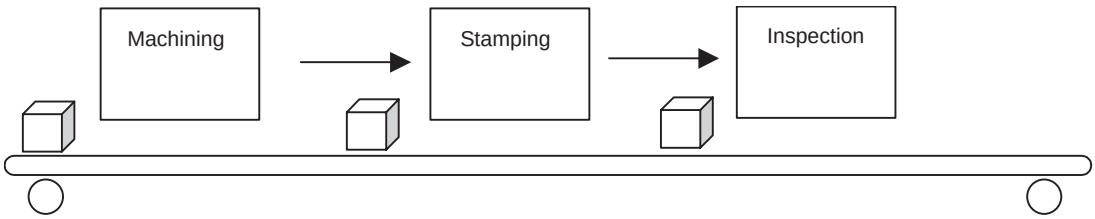
The overall system configuration when using the MES Interface module is shown below.



*1. The SNTP server personal computer and the personal computer used for operational settings can be used with the server personal computer.
*2. MES interface module time is required when SNTP server personal computer time is used.
*3. In this guide, the DB connection service setting is set to the default to shorten explanations.
*4. This is not used in the system configuration examples given in this guide.

CHAPTER 2 EXAMPLE SYSTEM OUTLINE

This section describes the process of building a simple data collection system using the MES Interface unit.

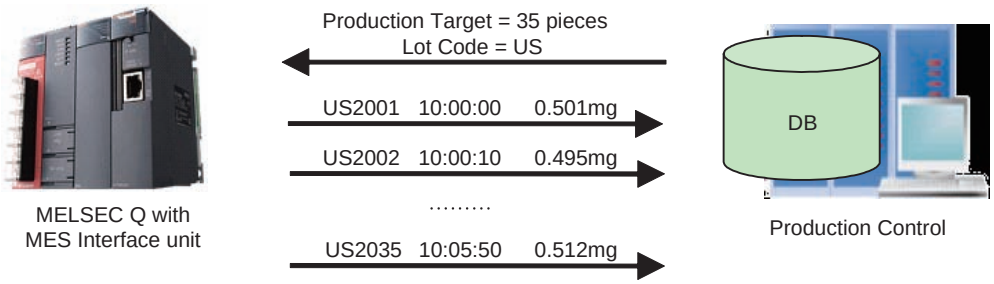


Our example uses a metal parts manufacturing line automated by MELSEC Q and the MES Interfaces.

Machining Station: Executes machining processes that convert blanks into finished parts.
Stamping Station: Imprints a lot code and unique serial number on the surface of each finished part.
Inspection Station: Measures the weight of each completed parts.

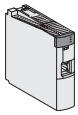
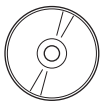
Interactions between the control system and production database are as follows.

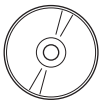
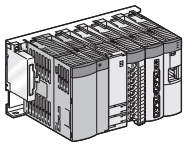
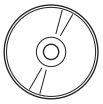
1) Acquiring Production Scheduling Information (Database → MES I/F → Controller)
   Before starting production, the MES Interface acquires the target production quantity and lot ID code from a table in the production control database. Then part manufacturing occurs according to the target quantity. The Lot ID code is added as a prefix before the serial number is stamped on each part.
2) Delivering As-produced Information (Controller → MES I/F → Database)
   After each part exits the inspection station, the actual serial number, production time and part weight are collected by the MES Interface and transferred to the production control database.
3) Modifying Data to Improve Usability (Scaling in the MES I/F)
   The inspection scale reports part weight to the control system in grams + decimal, but a production report from the database information should read in milligrams. To avoid control logic changes and extra processing at the database level, the weight data is converted to mg format in the MES interface.



CHAPTER 3 REQUIRED EQUIPMENT FOR START-UP

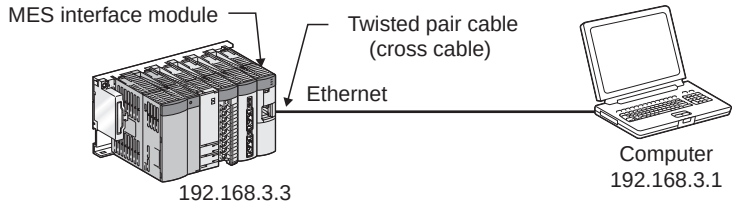
Before creating a sample system, the following items must be prepared.

MES interface module, QJ71MES96 	The MES interface module establishes linkages between device data of a programmable controller (production equipment) and a database of an information system (MES: Manufacturing Execution System), without using a communication gateway.
Compact Flash card GT05-MEM-128MC 	The MES interface module is equipped with and uses one Compact Flash card. For more on usable Compact Flash cards, please refer to MES Interface Module User's Manual.
Configuration software,MX MESInterface SW1DNC-MESIF-E 	Only specifying necessary data allows data communications (SQL texts) without any programming.This software includes the following tools: • MES interface function configuration tool Software that is run on a configuration computer and performs settings required for the MES interface function of the MES interface module. In addition to the settings, checking the operating status or operation logs and stopping/restarting the MES interface function operation are also available with this software. • DB connection service Software that is run on a server computer and is used for linking a database to the MES interface module. • DB connection service setting tool Software that is run on a server computer and is used to change the settings of “DB connection service”.
Computer 	The computer is used as a server computer and a configuration computer. In this guide, Microsoft® Windows® XP Professional Operating System is used as the basic software (OS) in explanations. For hardware requirements of the computer to be used, refer to “MES Interface Module User's Manual”.
Twisted pair cables and a hub	Used to connect the computer to the MES interface module, QJ71MES96. Cables must be compliant with the standard of IEEE802.3 10BASE-T/ 100BASE-TX. Use straight cables when using a hub, or use a crossing cable when not using a hub.

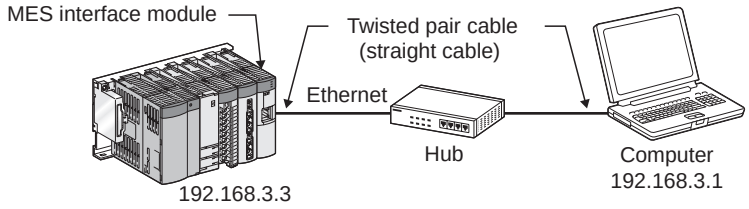
Microsoft Access 2003 	Basic software that is run on a server computer and used to create a sample database provided in this guide.
Programmable controller CPU 	A programmable controller CPU system that uses the MES interface module. For applicable CPU modules, quantity, and base units, refer to “MES Interface Module User's Manual”.
GX Developer 	An integrated programming tool for performing design, debugging, and maintenance of sequence programs for programmable controller CPUs. By using this, sequence program monitoring, program or data modification during program execution, and ON/OFF of inputs/outputs are also available.For the operation method, refer to “GX Developer Operating Manual”.

CHAPTER 4 EQUIPMENT SETUP

Components required to build a sample system are shown below:



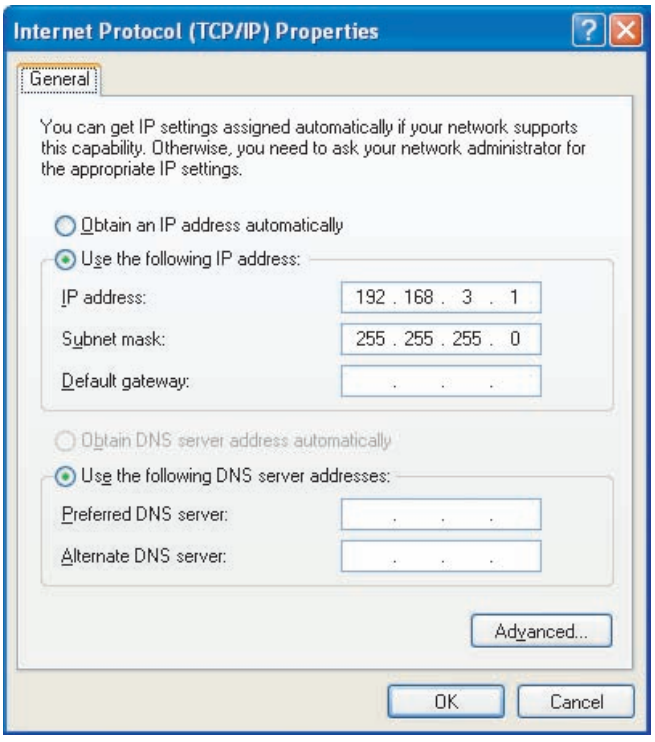
or



(1) Computer

- Install the Microsoft Access 2003 on the computer concerned.
- Set computer IP address to 192.168.3.1.

Change this setting in the Internet Protocol (TCP/IP) Properties dialog box.
(Example) If the Microsoft Windows XP Professional operating system is used,



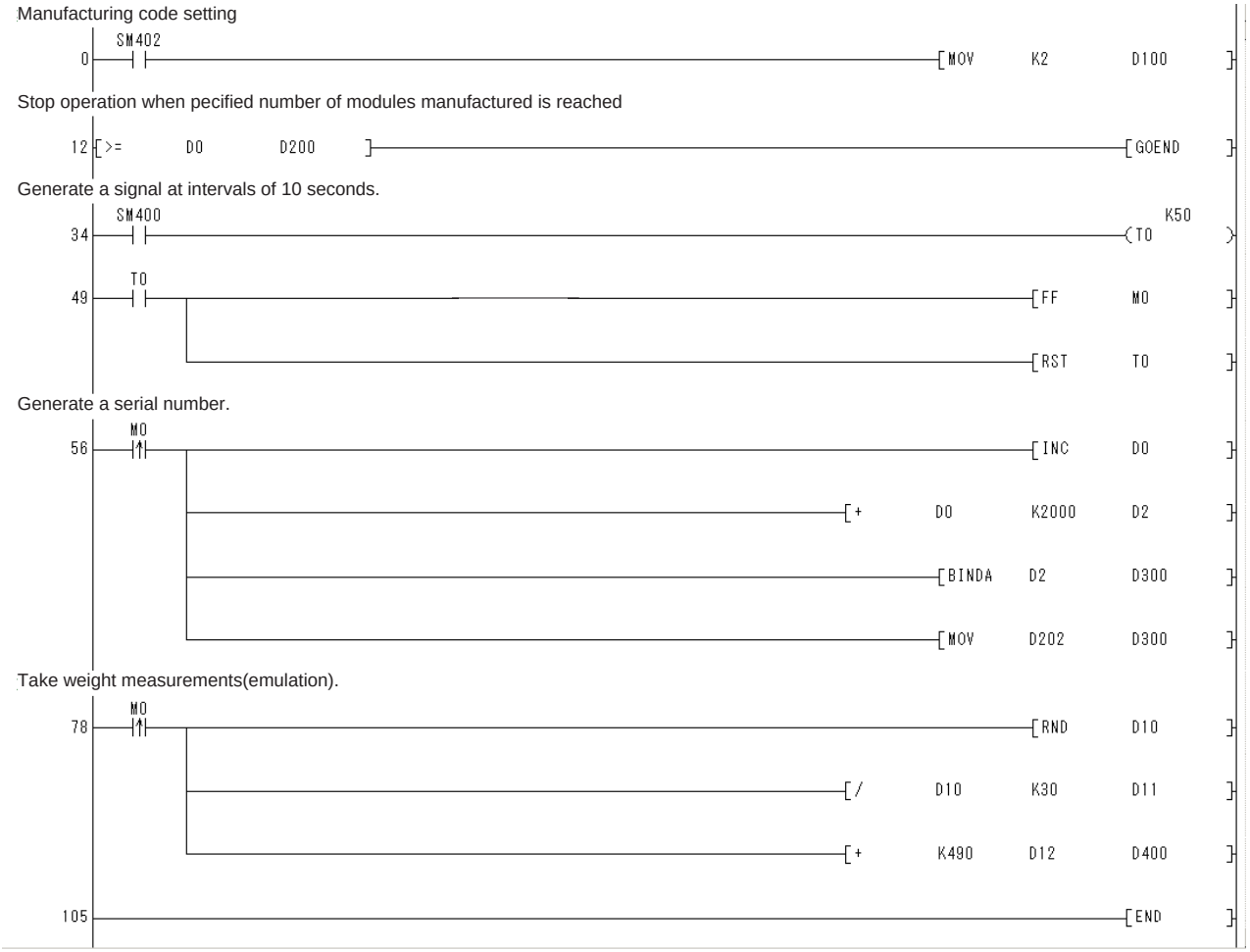
(2) MES Interface Module (QJ71MES96)

- Mount the MES interface module in a slot other than the base module CPU slot.
- Mount the Compact Flash card in the MES interface module Compact Flash card mount slot.
- The Compact Flash card is formatted using the format function of the information linking function configuration tool.

  Do not format the Compact Flash card in Windows®. In the event of accidentally formatting the Compact Flash card in Windows®, reformat following the instructions in the Compact Flash card manual.

(3) Sequencer CPU

- Write the following sequence program which simulates a metal part manufacturing line, into the CPU.



CHAPTER 5 SOFTWARE INSTALLATION

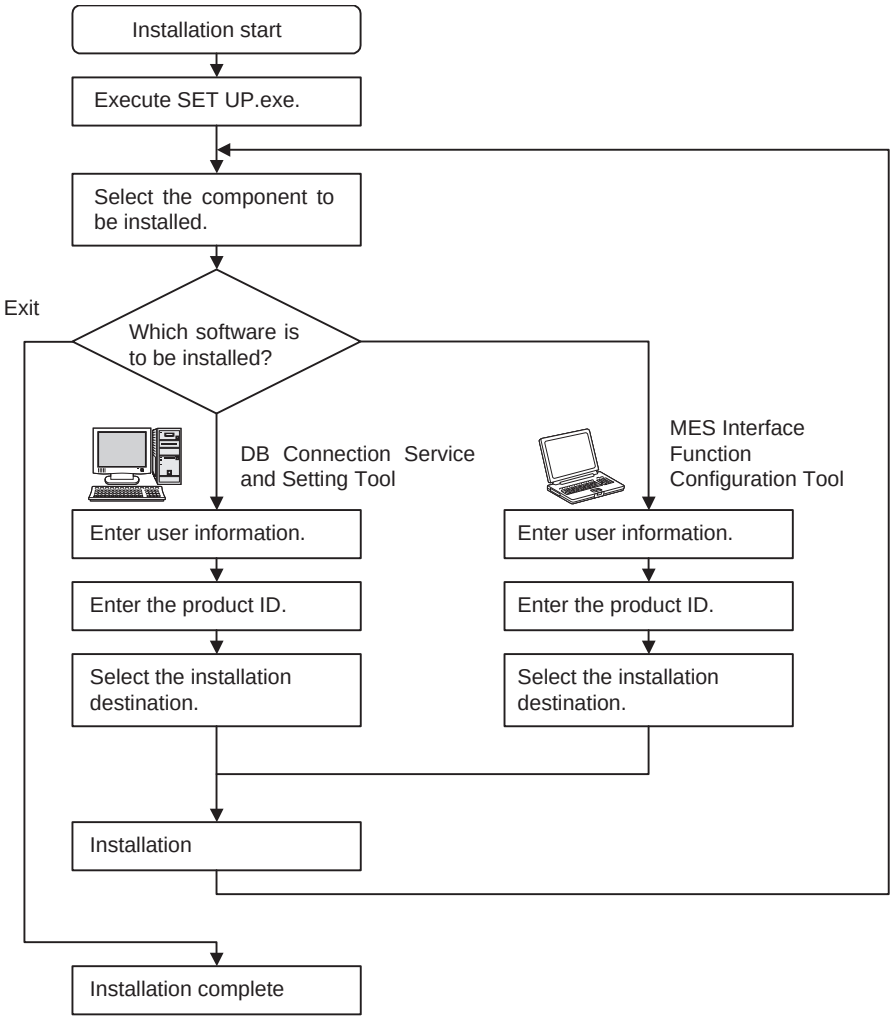
This section explains how to install MX MESInterface function configuration software in each operating environment.

In this guide, the method when using Microsoft®Windows®XP Professional Operating System is explained. When using other basic software (OS), refer to the MES Interface Module User's Manual.

5.1 Installation

This section explains how to install MX MESInterface.

(1) MX MESInterface installation procedure



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If a confirmation message for overwriting DLL files is displayed at installation, click the Yes button and overwrite the DLL files.
Not overwriting the DLLs may fail to execute MX MESInterface correctly.

(2) MX MESInterface installation

For system configurations, refer to the following:

Point

(1) When installing MX MESInterface, log on as a user with Administrator authority.

(2) Before installing MX MESInterface, close any other applications running on Windows®.

(3) Updates for the OS or software from other companies, such as Windows® Update or java applets, automatically restart the computer and in some cases, the installer will not operate normally.
Install the software after changing the settings so that updates do not automatically restart the computer.

(Start)

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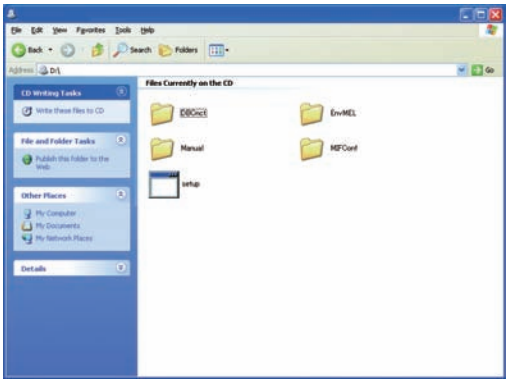

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1 Start Windows Explorer, then click the drive in which the CD-ROM is loaded.
Double click “SETUP.exe”.
To display Windows Explorer, right click [Start], then select [Explore].

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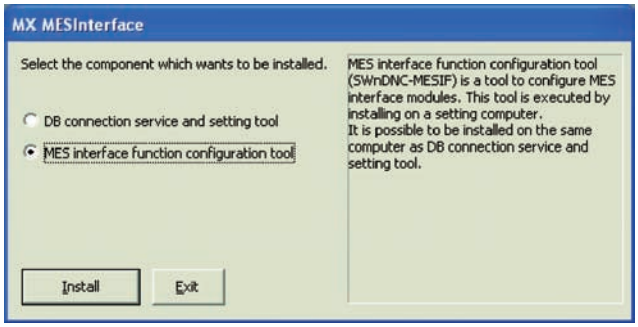
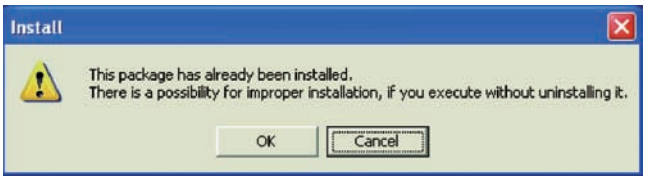
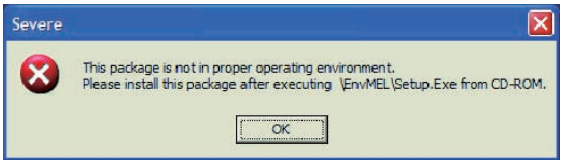


2 The dialog box for selecting the component to be installed is displayed.
Select the component to be installed with the radio button, then click the Install button.



If the left message appears, click the Cancel button and after uninstalling MX MESInterface, install this product.

If the left message appears, install this product on a computer to which the basic software (OS) compatible with the product is installed.



If the left message appears, execute \EnvMEL\Setup.exe in the CD-ROM for this product.
After executing Setup.exe, install this product.
If the product is not installed correctly, restart the computer.

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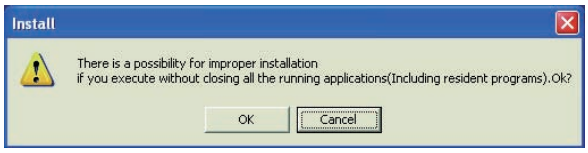

3 The left screen appears. Check that all applications have been closed, then click the OK button.
If any applications are running, close them all.

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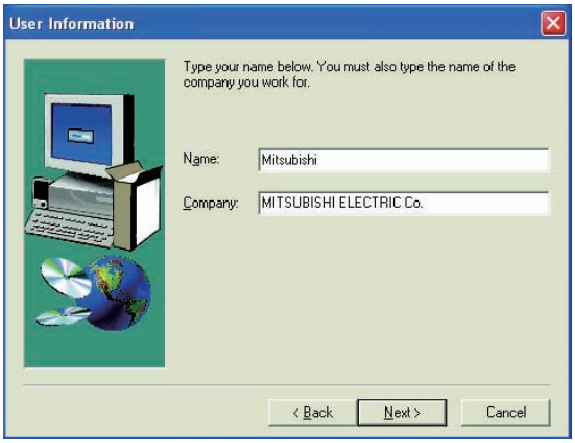
4 Setup starts.
The left screen appears. Check the description, then click the Next > button.



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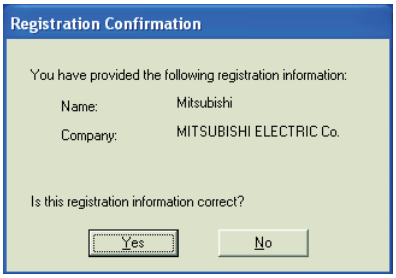
5 Enter a user name and company name, then click the Next > button.



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6 Check the user name and company name registered.
If the registration contents are correct, click the Yes button.
When changing the registration contents, click the No button to return to the previous screen.

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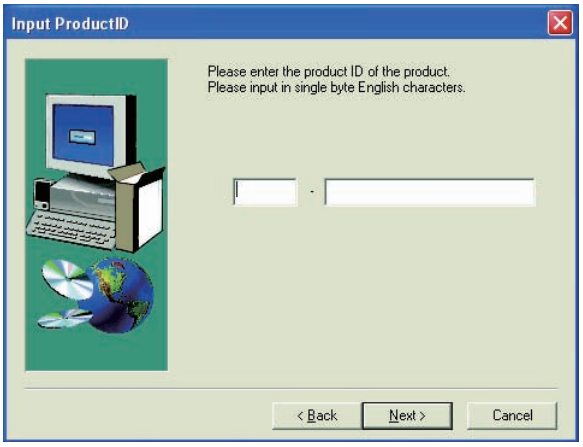

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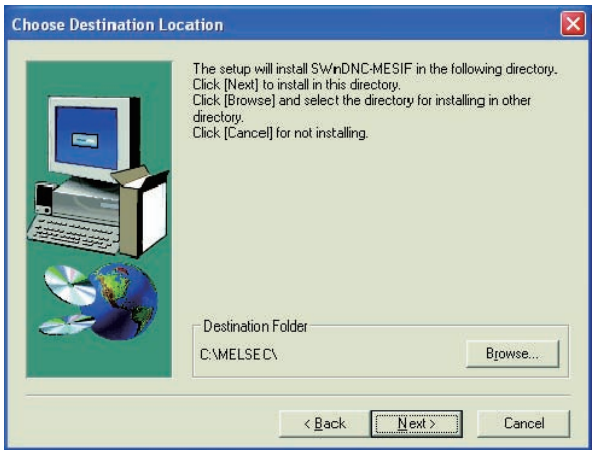

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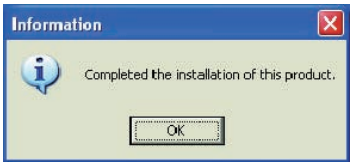

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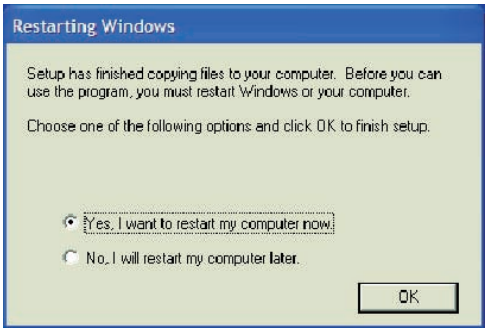

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7 Register the product ID.

Enter the product ID, then click the Next > button.

8 Specify the folder for installation destination.

When using the default folder, click the Next > button.

To change the folder, click the Browse... button, then specify the drive and folder for installation destination.

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Up to 100 characters including "\MESIF" can be used for the installation destination. This means that up to 94 characters can be used when specifying a destination folder as a directory.

9 When the left screen appears, installation is complete.

Click the OK button.

10 To restart the computer, check the "Yes, I want to restart my computer now." checkbox, then click the OK button.

To not restart the computer, check the "No, I will restart my computer later." checkbox, then click the OK button.

* It is recommended to restart the computer after installation.

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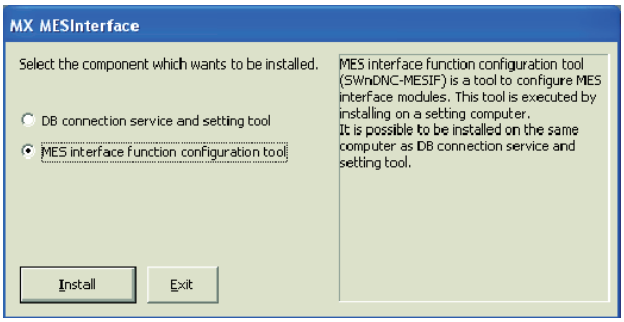

12 The dialog box for selecting the component to be installed is displayed.

When installing the other software, select the component to be installed with the radio button, then click the Install button.

When the installation is complete, click the Exit button.

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(End)

After installing MES Interface Function Configuration Tool and DB Connection Service Setting Tool, the following icons are registered.

CHAPTER 6 CREATING A DATABASE TABLE

6.1 General Description

This section explains the procedure for making a sample DB table using the database Microsoft® Access 2003. Two types of DB table shown below will be prepared.

<table>
<tr><th>Table name</th><th>Table design</th><th>Data</th></tr>
<tr><td>OrderTable</td><td>
<table>
<tr><th>Filed name</th><th>Data type</th><th>Field size</th></tr>
<tr><td>OrderCode</td><td>Numerical type</td><td>Integer type</td></tr>
<tr><td>ProductCode</td><td>Text type</td><td>2</td></tr>
<tr><td>PlanNumber</td><td>Numerical type</td><td>Integer type</td></tr>
</table>
</td><td>
<table>
<tr><th>OrderCode</th><th>ProductCode</th><th>PlanNumber</th></tr>
<tr><td>1</td><td>EN</td><td>20</td></tr>
<tr><td>2</td><td>US</td><td>35</td></tr>
<tr><td>3</td><td>CN</td><td>25</td></tr>
</table>
</td></tr>
<tr><td>History</td><td>
<table>
<tr><th>Filed name</th><th>Data type</th><th>Field size</th></tr>
<tr><td>SerialCode</td><td>Text type</td><td>6</td></tr>
<tr><td>Date_Time</td><td>Date/time type</td><td>—</td></tr>
<tr><td>Weight_mg</td><td>Numerical type</td><td>Single type</td></tr>
</table>
</td><td>* No data because this table is for “Insert” action.</td></tr>
</table>

6.2 OrderTable Creation

(Start)
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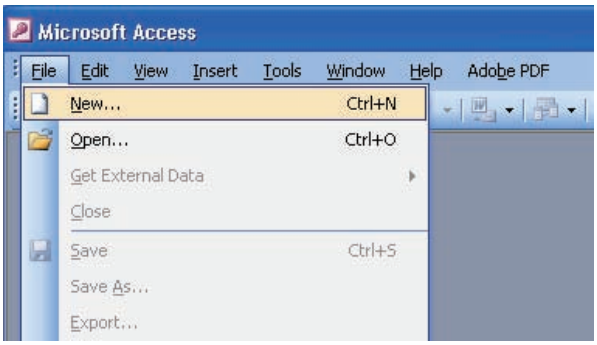

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1. Start the Microsoft Office Access 2003 from the Windows® Start menu.
2. Select File on the menu bar and then click New.

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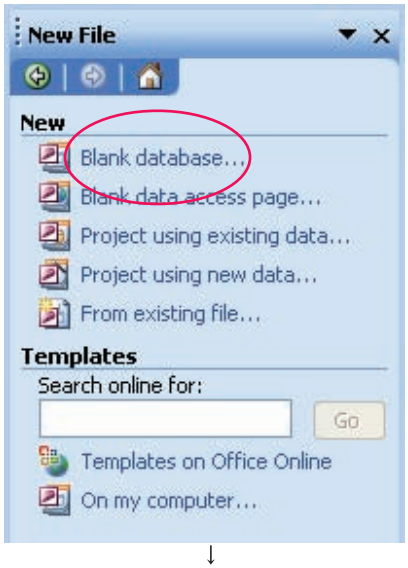

3 Choose Blank Database from the menu appearing at the right to create a new database.

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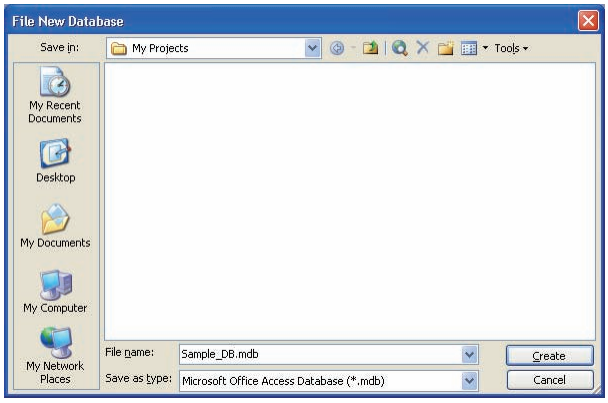
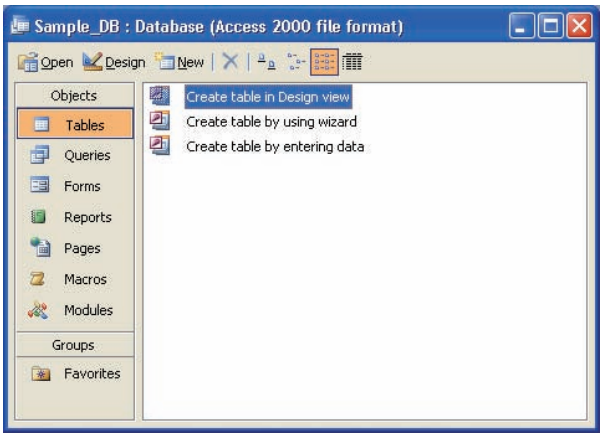


4 Specify file name as “Sample_DB.mdb.” and click the Create button.

↓



5 The above step opens the following dialog box. Select “Create a table in Design View.”

↓

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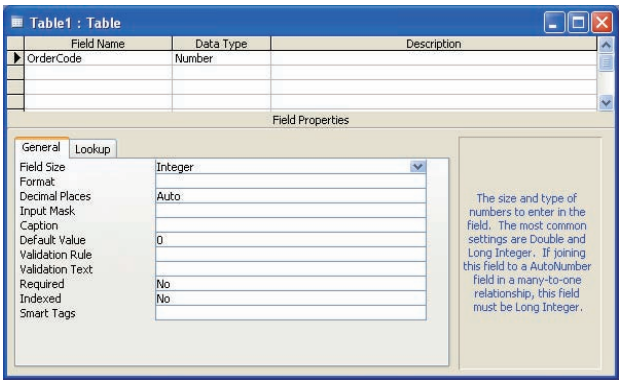
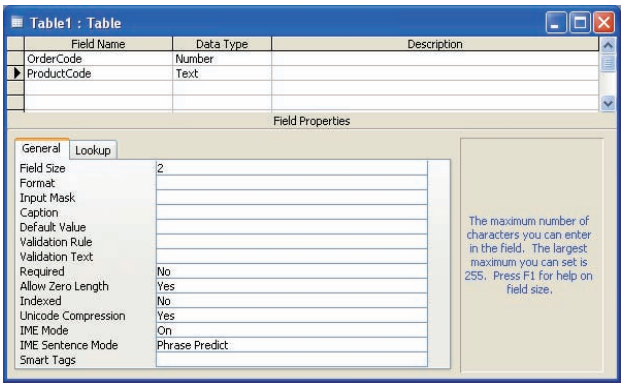
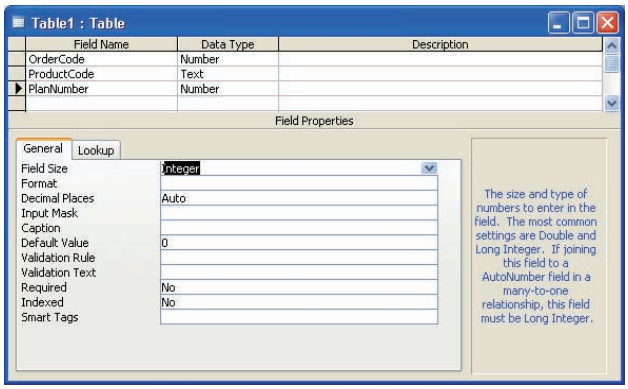


6 When a table properties window (Design View) appears, enter into the first line “OrderCode” as field name, “Number” as data type and “Integer” as field size.



7 Enter into the 2nd line “ProductCode” as field name, “Text” as data type and “2” as field size.



8 Enter into the 3rd line “PlanNumber” as field name, “Number” as data type and “Integer” as field size.

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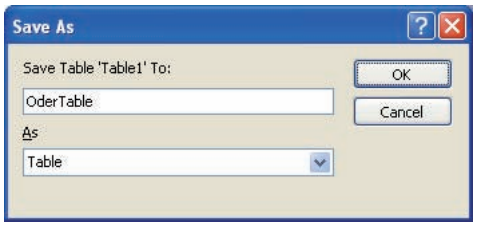
↓

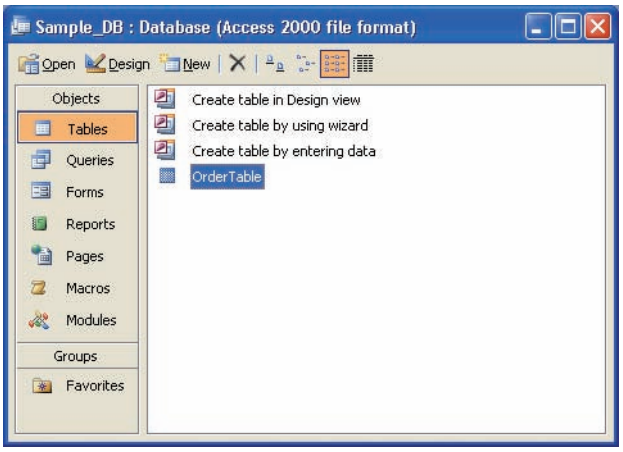


↓

9 Select File on the menu bar and then click Save As. In the dialog box that appears, enter “OrderTable” in the Table Destination field and select “Table” in the Type-of-affixation field. Click the OK button.

10 When the following dialog box appears, select No.

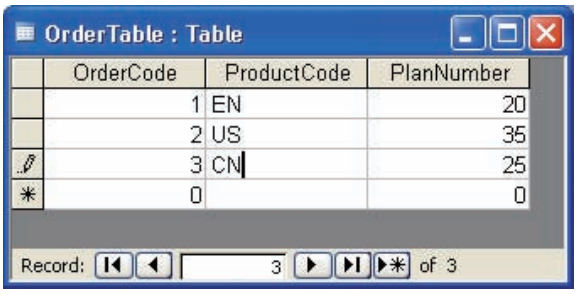
↓



11 Upon the completion of table saving, close Design - View.

12 Next, select “OrderTable” and click the Open button to bring it up to the screen.

↓



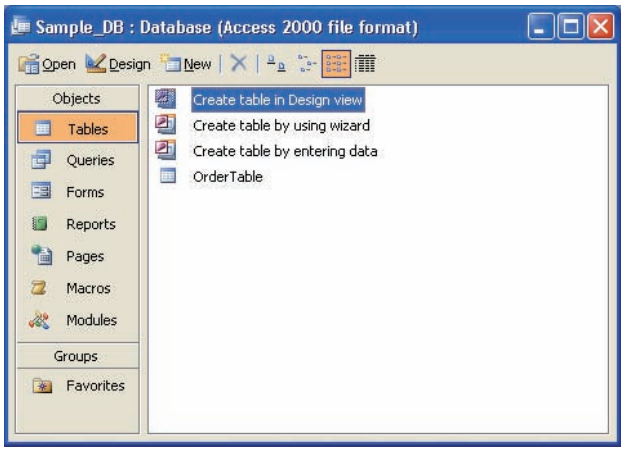
13 When the table shows up, enter data as shown below. Upon the completion of data entry, close the table.

6.3 “History” Table Creation

“History” table is created in a similar way to the “OrderTable.”

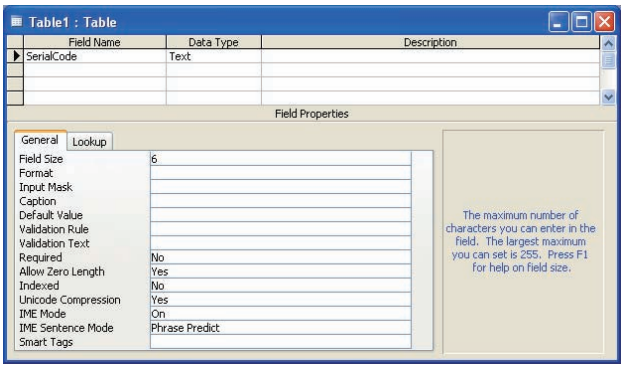
(Start)

↓



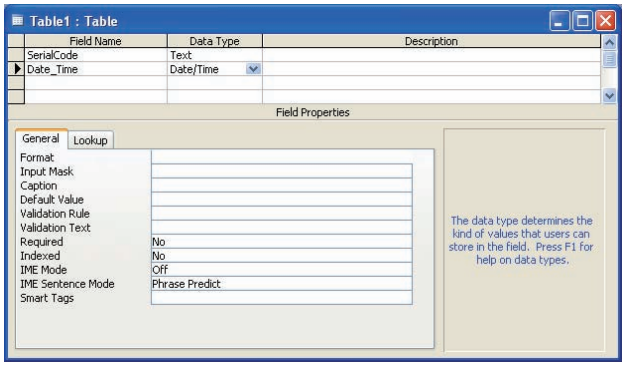
1 The operation of the DB interface function is shown below.

↓



2 When the screen for table properties (Design - Review) appears, enter into the first line “SerialCode” as field name, “Text” as data type and “6” as field size.

↓



3 Enter into the 2nd line “Date_Time” as field name and “Date/Time” as data type.

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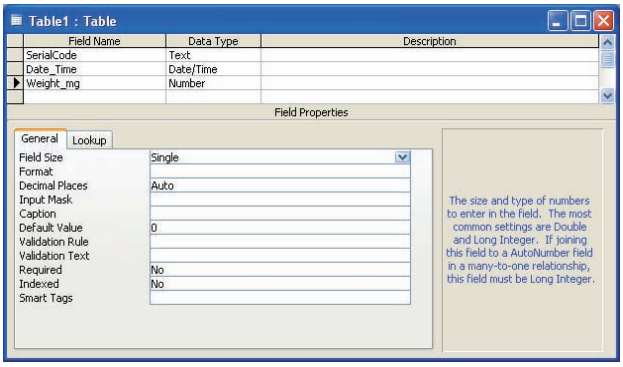
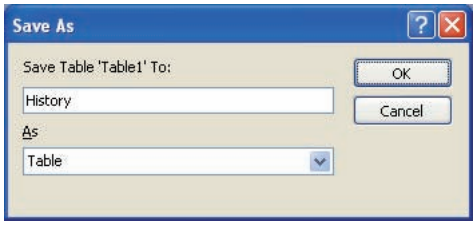


4 Enter into the 3rd line “Weight_mg” as field name, “Number” as data type and “Single” as field size.

↓

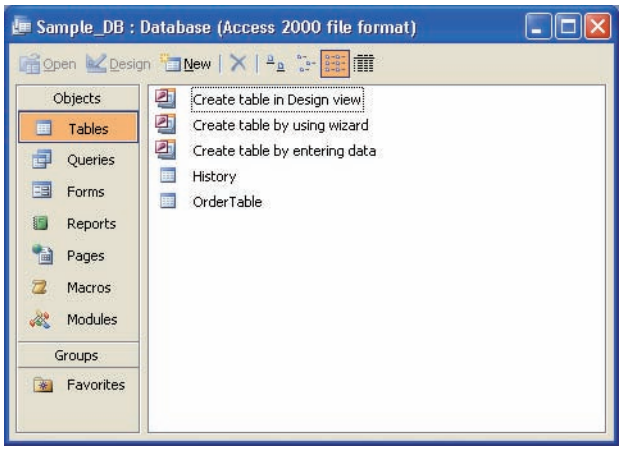


5 Select File on the menu bar and then click Save As. In the dialog box that appears, select “History” in the Table Destination field and “Table” in the type-of-affixation field. Click the OK button.

↓

6 When the following dialog box appears, select No.

↓



7 After saving the table, close the Design - View.

CHAPTER 7 ODBC SETTING

This section explains setting method for the following basic software (OS) and relational databases.

- Basic software (OS): Microsoft Windows XP Professional Operating System
- Relational database : Microsoft Access 2003

When using software or relational database other than above, refer to (MES Interface Module User's Manual)".

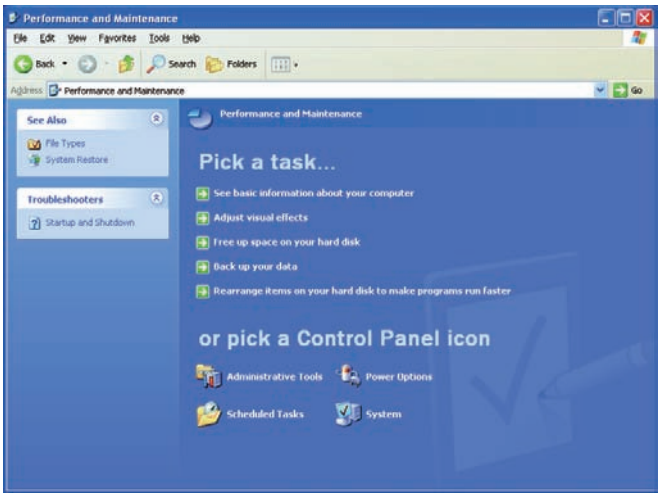
Set the following conditions.

- Data source name*1 : SAMPLEDS
- Database name*2 : C:\mes\Sample_BD.mdb

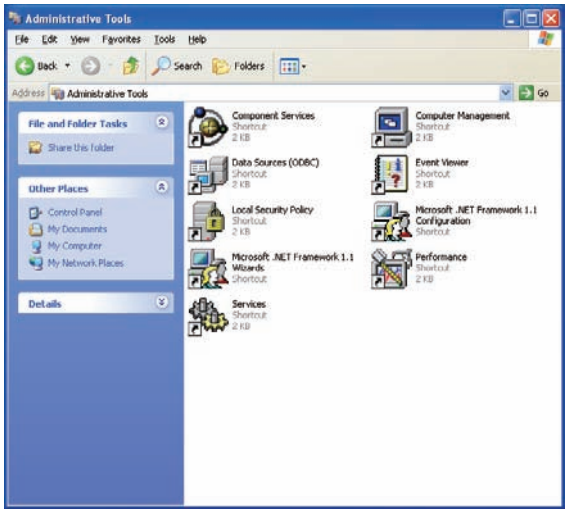
*1 Data source name can be set as desired.
The name in this setting is to be used as the [data source name] in [Server service setting].

*2 The database name is the name for accessing a Microsoft Access database.
Specify the path in which the database file created in Microsoft Access is stored.

(Start)
↓



1 Clicking [Performance and Maintenance] on the Control Panel displays the [Performance and Maintenance] dialog box.
To display the Control Panel, select [Start] → [Control Panel].



2 Clicking [Administrative Tools] displays [Administrative Tools] dialog box.

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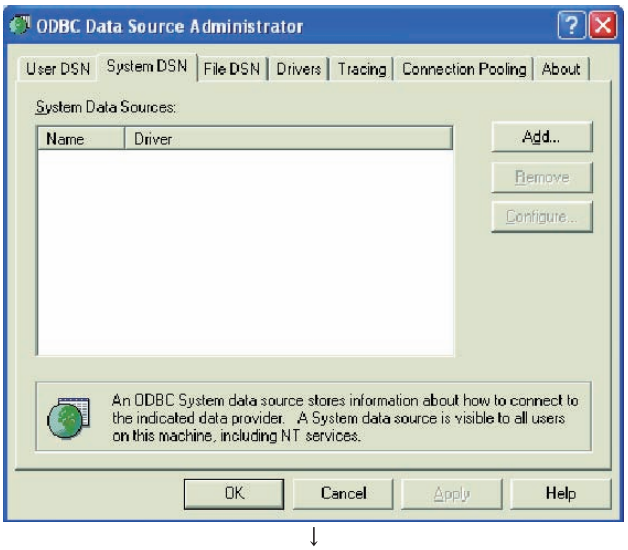
(From the previous page)

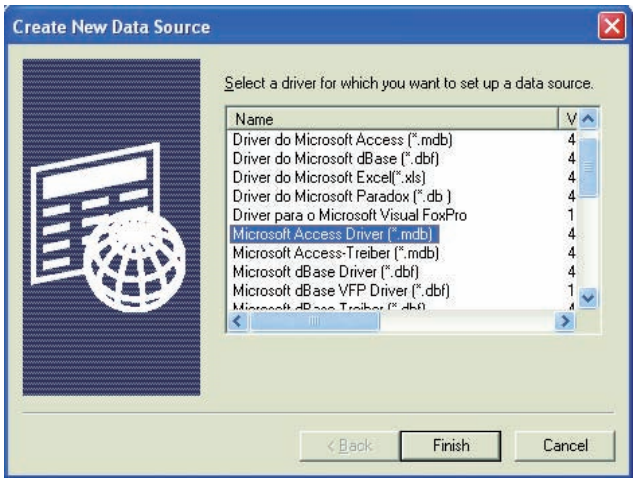
↓



↓

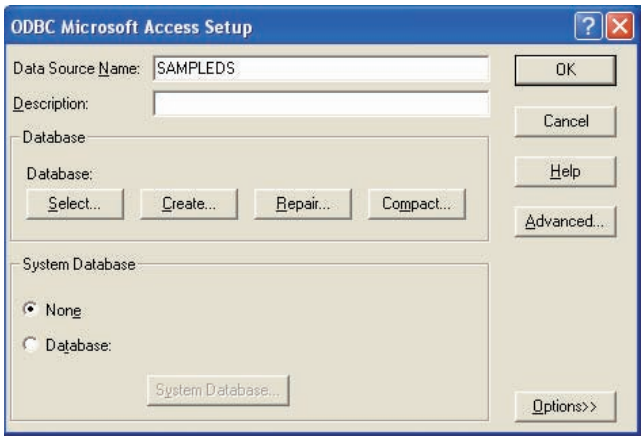
3 Double clicking [Data Sources (ODBC)] displays [ODBC Data Source Administrator] dialog box.

Select the [System DSN] tab, then click the Add button.



↓

4 The [Create New Data Source] dialog box is displayed, then select [Microsoft Access Driver(*.mdb)].



↓

5 The [ODBC Microsoft Access Setup] dialog box is displayed. Set the following and click the [Database] selection button.

- [Data source name]: SAMPLEDS

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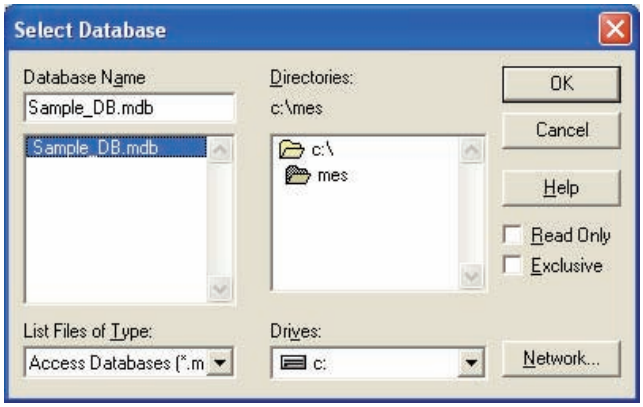


6 The [Select Database] dialog box is displayed.
Select the following and click the OK button.

- [Folder]: C: \ mes
- [Database Name]: Sample_DB.mdb

7 Click the OK button in the [ODBC Microsoft Access Setup] dialog box.

8 Click the OK button in the [ODBC Data Source Administrator] dialog box.

↓

(End)

CHAPTER 8 MES INTERFACE CONFIGURATION

8.1 General Description

This section explains the procedure for specifying parameters using the MES Interface Configuration Tool.
Table below lists the parameters to be specified.

<table>
<tr><th>Item of setting</th><th>Description</th></tr>
<tr><td>System settings</td><td>Default settings</td></tr>
<tr><td>Access target settings</td><td>Default settings</td></tr>
<tr><td>Device tag settings</td><td>Device tag name: GettingData
Sampling settings: Normal sampling for a period of one second.
<table>
<tr><th></th><th>Component name</th><th>CPU name</th><th>Device</th><th>Data type</th><th>Statistical type</th></tr>
<tr><td>1</td><td>Ocode</td><td>ControlCPU</td><td>D100</td><td>Single precision</td><td>-</td></tr>
<tr><td>2</td><td>Scode</td><td>ControlCPU</td><td>D300-D302</td><td>Character string, 6 characters</td><td>-</td></tr>
<tr><td>3</td><td>Weight_g</td><td>ControlCPU</td><td>D400</td><td>Single precision</td><td>-</td></tr>
<tr><td>4</td><td>ReportingTrigger</td><td>ControlCPU</td><td>M0</td><td>Bit</td><td>-</td></tr>
</table>
Device tag name: PuttingData
Sampling settings: Do not sample
<table>
<tr><th></th><th>Component name</th><th>CPU name</th><th>Device</th><th>Data type</th><th>Statistical type</th></tr>
<tr><td>1</td><td>Plan</td><td>ControlCPU</td><td>D200</td><td>Single precision</td><td>-</td></tr>
<tr><td>2</td><td>PCode</td><td>ControlCPU</td><td>D202</td><td>Character string, 2 characters</td><td>-</td></tr>
</table></td></tr>
<tr><td>Server service settings</td><td>Server service name: SampleServer
Server type: Database server
IP address: 192.168.3.1
Port number: 5112
User name: "Blank"
Password: "Blank"
Data source name: SAMPLEDS
Database type: Access 2003/2007
Communication timeout interval: 10 seconds</td></tr>
<tr><td>Job settings</td><td>Job name: GettingPlan
Enabled or not at module startup: Enabled
Trigger buffering: None
Trigger condition: At module startup
<Action 1>
Type of action: SELECT
Table name: OrderTable
DB-tab link settings:
<table>
<tr><th>Filed name</th><th>Tag</th><th>Component</th></tr>
<tr><td>ProductCode</td><td>PuttingData</td><td>PCode</td></tr>
<tr><td>PlanNumber</td><td>PuttingData</td><td>Plan</td></tr>
</table>
Select/update conditions
<table>
<tr><th>Filed name</th><th>Condition</th><th>Tag</th><th>Component</th></tr>
<tr><td>OrderCode</td><td>=</td><td>GettingData</td><td>OCode</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>Item of setting</th><th>Description</th></tr>
<tr><td>Job settings</td><td>
Job name: Reporting
Enabled or not at module startup: Enabled
Trigger buffering: Provided
Trigger condition: Value monitoring startup
<table>
<tr><th>Tag</th><th>Component</th><th>Condition</th><th>Tag/type</th><th>Component</th></tr>
<tr><td>GettingData</td><td>ReportingTrigger</td><td>=</td><td>[Constant]</td><td>ON</td></tr>
</table>

<Action 1>
Type of action: Operation
<table>
<tr><th>Substitution tag</th><th>Component</th><th>Operation tag</th><th>Component</th><th>Operator</th><th>Operation tag</th><th>Component</th></tr>
<tr><td>[Variable]</td><td>Conversion</td><td>GettingData</td><td>Weight_g</td><td>/</td><td>[Number]</td><td>1000</td></tr>
</table>

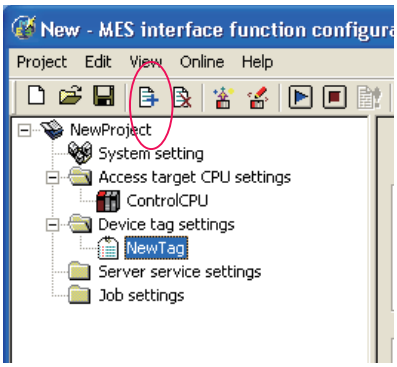
<Action 2>
Type of action: Insert
Table name: History
DB-tag link settings:
<table>
<tr><th>Field name</th><th>Tag</th><th>Component</th></tr>
<tr><td>SerialCode</td><td>GettingData</td><td>SCode</td></tr>
<tr><td>Date_Time</td><td>[Date]</td><td>Module time</td></tr>
<tr><td>Weight_mg</td><td>[Variable]</td><td>Conversion</td></tr>
</table>
</td></tr>
</table>

8.2 Specifying Parameters

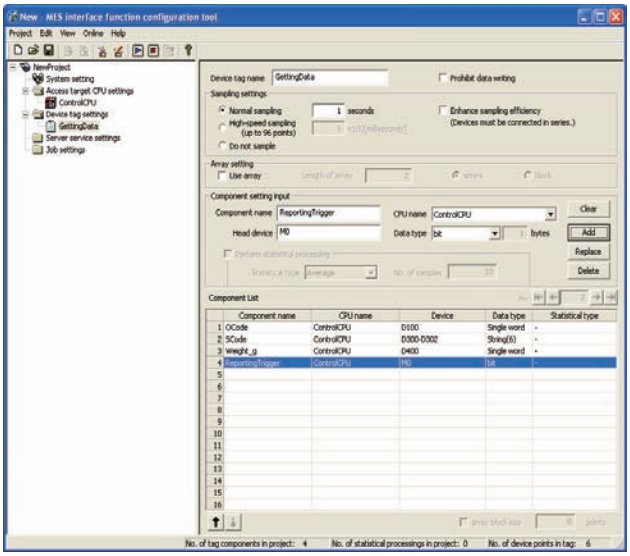
1. Start the “MES Interface Configuration Tool” from the Windows Startup menu.

2. “System settings” and “Access target CPU settings” need not be established because they take default settings.

3. Specify a “device setting.” Select “Device Settings” and click the [Add] button ( ).



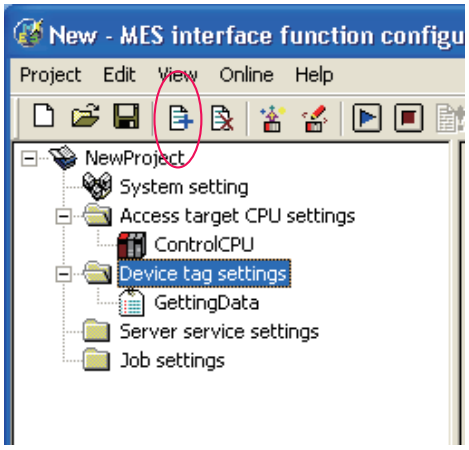
4. Enter “GettingData” into the Device Tag Name field and specify parameters as shown below.



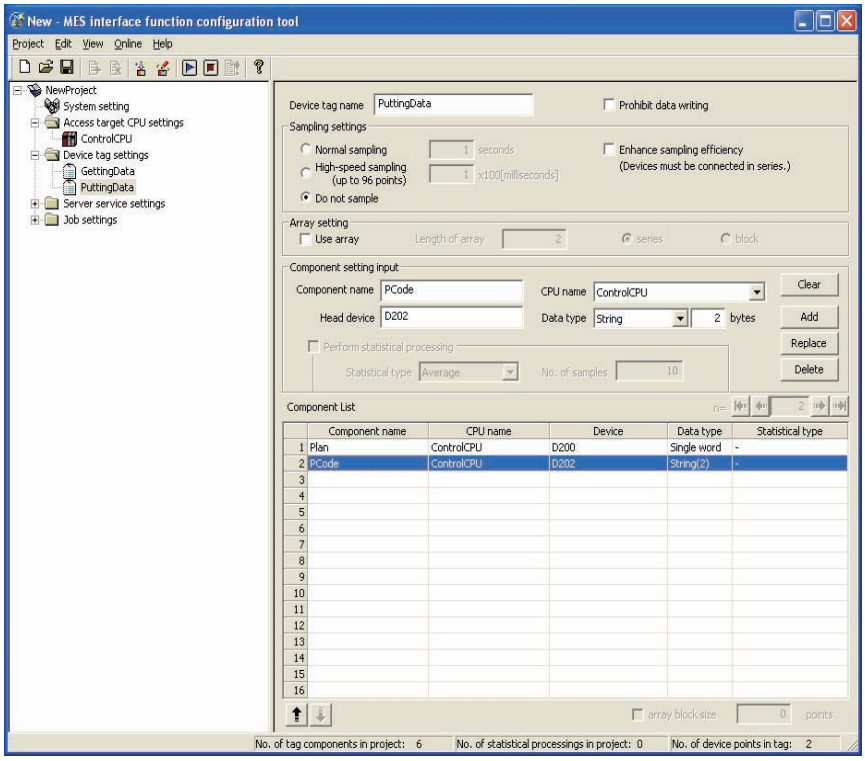
Setting item	Setting description	Setting method
Device name	GettingData	Text input
Sampling setting	Normal sampling; 1 second	• Radio button selection (sampling) • Text input (No. of seconds)
Component setting input	See table below	• After inputting the information in a row, click the [Add] button. • Text input (component, device, character/number) • List selection (CPU, data type)

	Component name	CPU name	Device	Data type	Statistical type
1	OCode	ControlCPU	D100	Single precision	-
2	SCode	ControlCPU	D300-D302	Character string, 6 characters	-
3	Weight_g	ControlCPU	D400	Single precision	-
4	ReportingTrigger	ControlCPU	M0	Bit	-

5 Specify another “device setting.” Select “Device Settings” and click the [Add] button ( ).



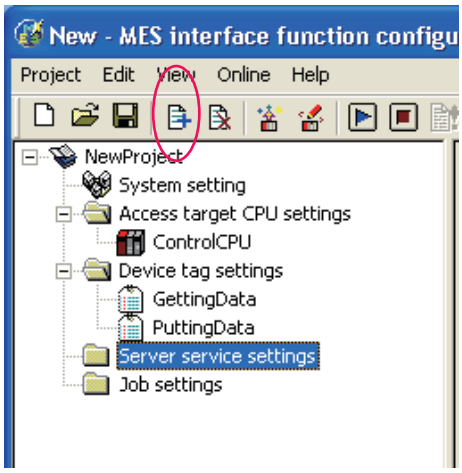
6 Enter “PuttingData” into the Device tag name field and specify parameters as shown below.



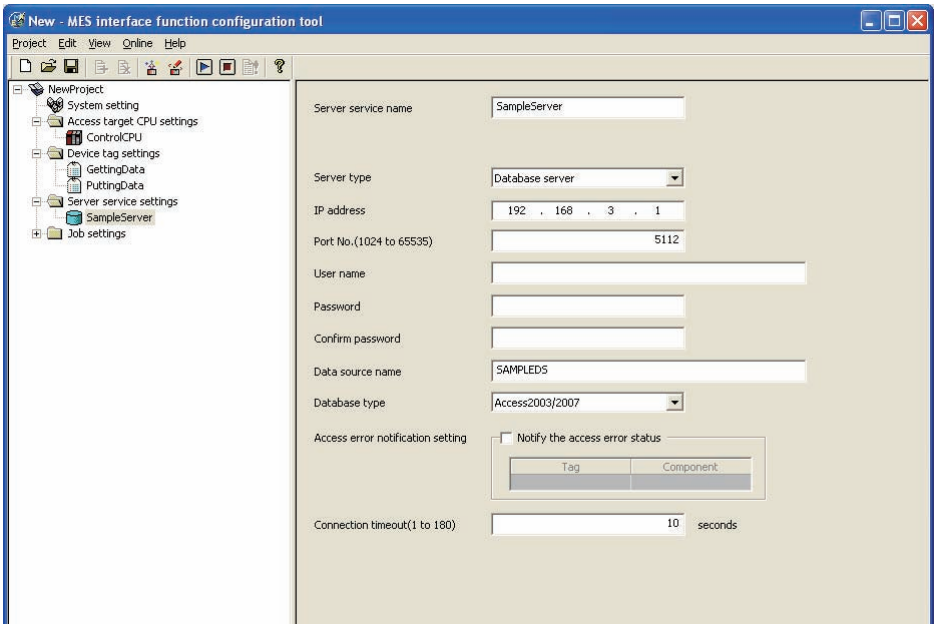
Setting item	Setting description	Setting method
Device name	PuttingData	Text input
Sampling settings	Do not sample.	Radio button selection
Component setting input	See table below	• After inputting the information in a row, click the [Add] button. • Text input (component, device, character/number) • List selection (CPU, data type)

	Component name	CPU name	Device	Statistical type	Statistical type
1	Plan	ControlCPU	D200	Single precision	-
2	PCode	ControlCPU	D202	Character string, 2 characters	-

7 Specify "server service settings." Select "Server Service Settings" and click the [Add] button ( ).

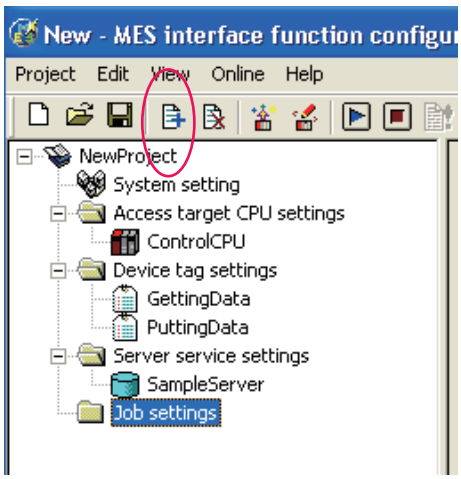


8 Enter “SampleServer” into the Server Service Name field and specify parameters as shown below.

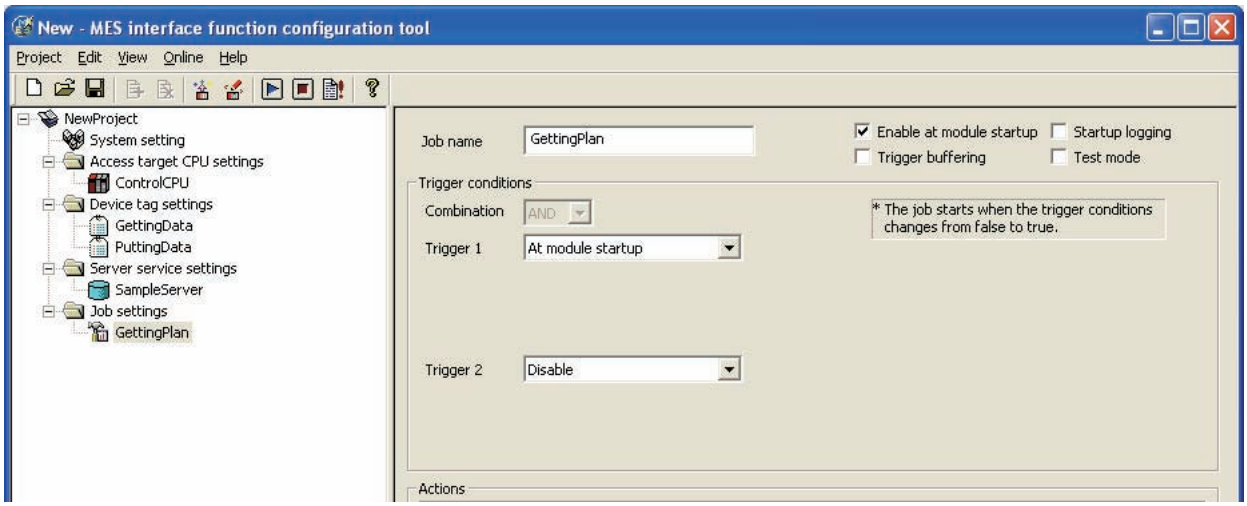


Setting item	Setting description	Setting method
Server service name	SampleServer	Text input
Server type	Database server	List selection
IP address	192.168.3.1	Text input
Port No. (1024-65535)	5112	Text input
User name	Empty	-
Password	Empty	-
Confirm password	Empty	-
Data source name	SAMPLEDS	Text input
Database type	Access2003/2007	List selection
Communication timeout time (1-180)	10	Text input

9 Specify “job settings.” Select “Job Settings” and click the [Add] button ( ).

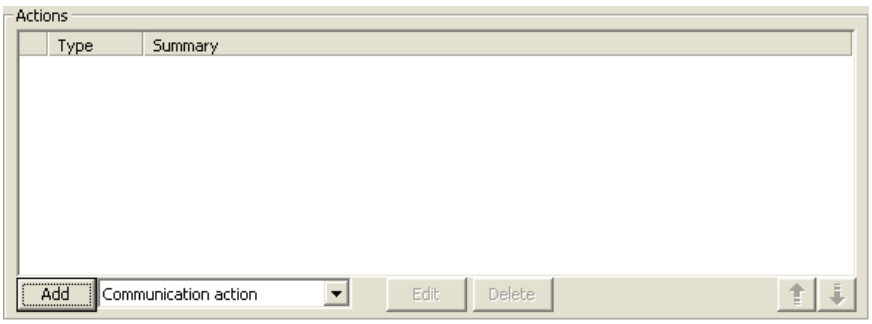


10 Enter “GettingPlan” into the Job Name field and specify trigger conditions as shown below.

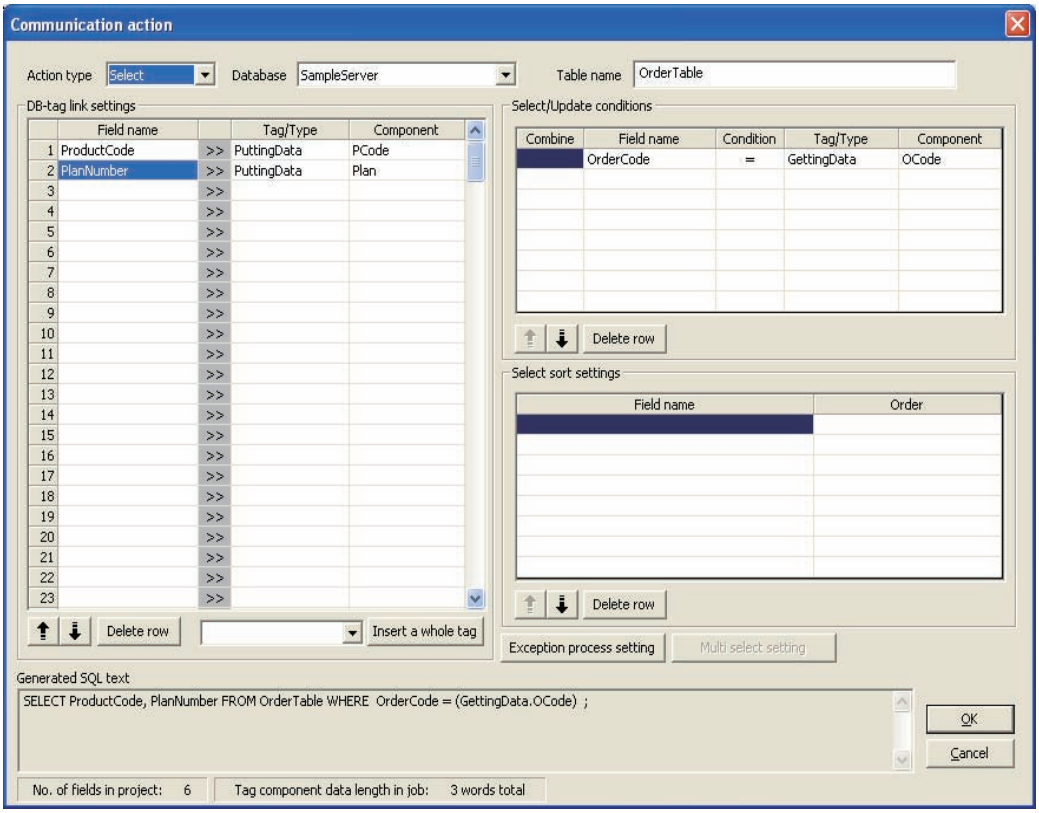


Setting item	Setting description	Setting method
Job name	GettingPlan	Text input
Enable at module startup	Place checkmark	Checkmark
Trigger buffering	Remove checkmark.	Checkbox reversion
Trigger conditions	First condition: At module startup	List selection

11 Next, specify an action. Select “Communication action” in the list box as shown below and click the [Add] button.

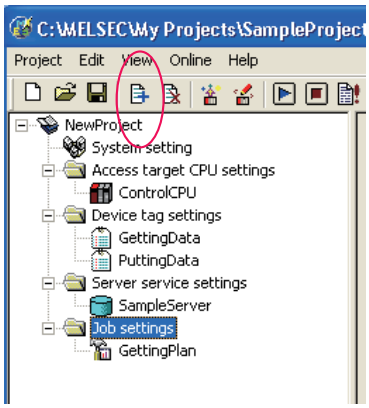


12 Choose "Select" in the list box for Action type and set the communication action parameters as is shown below. (Default setting is acceptable for the exception processing settings)
After the setting, SQL sentence to be sent to a database is automatically generated. The generated SQL sentence can be confirmed in the [Generated SQL text] box on the lower part of the screen.

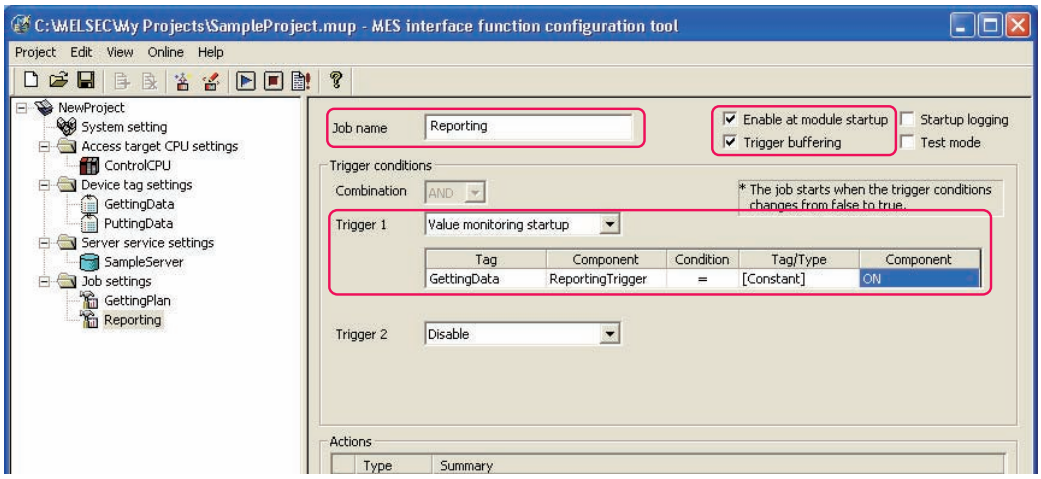


Setting item	Setting description	Setting method
Action type	Select	List selection
Table name	OrderTable	Text input
DB-tag link settings	<table><tr><th></th><th>Field name</th><th>Tag</th><th>Component</th></tr><tr><td>1</td><td>ProductCode</td><td>PuttingData</td><td>PCode</td></tr><tr><td>2</td><td>PlanNumber</td><td>PuttingData</td><td>Plan</td></tr></table>	• Text input (Field name) • List selection (Tag, Component)
Select/Update conditions	<table><tr><th>Field name</th><th>Condition</th><th>Tag</th><th>Component</th></tr><tr><td>OrderCode</td><td>=</td><td>GettingData</td><td>OCode</td></tr></table>	• Text input (Field name) • List selection (Condition, Tag, Component)

13 Specify another “job setting.” Select “Job Settings” and click the [Add] button ( ).

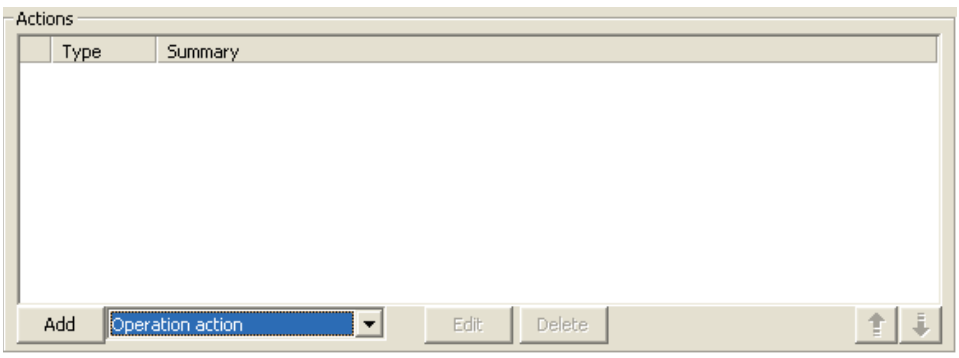


14 Enter “Reporting” into the Job Name field and specify trigger conditions as shown below.

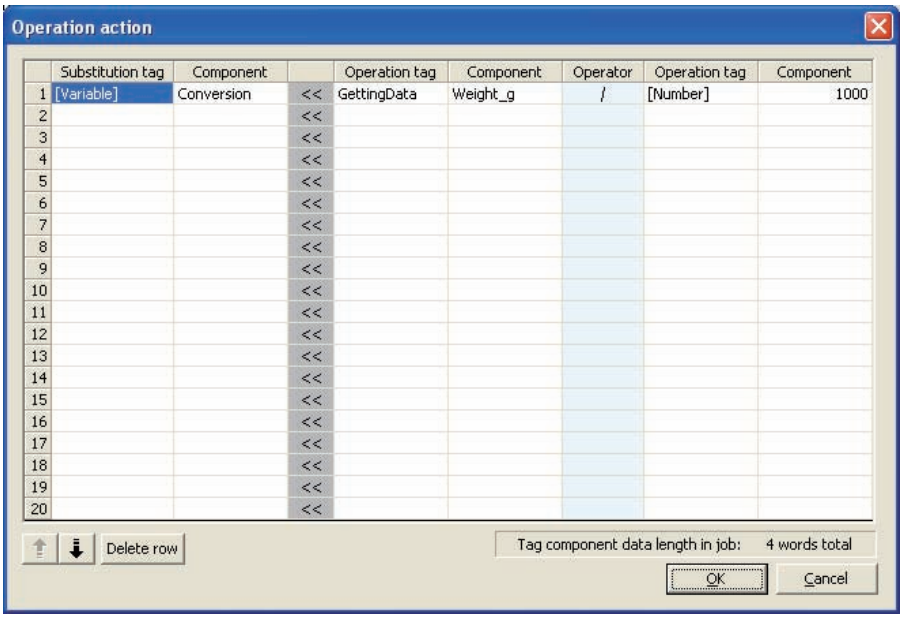


Setting item	Setting description	Setting method
Job name	Reporting	Text input
Enable at module startup	Place checkmark.	Checkmark
Trigger buffering	Place checkmark.	Checkmark
Trigger condition	First condition: Value monitoring startup Tag: GettingData / Component: ReportingTrigger / Condition: = / Tag/Type: [Constant] / Component: ON	List selection

15 Next, specify an action. Select “Operation action” in the list box as shown below and click the [Add] button.



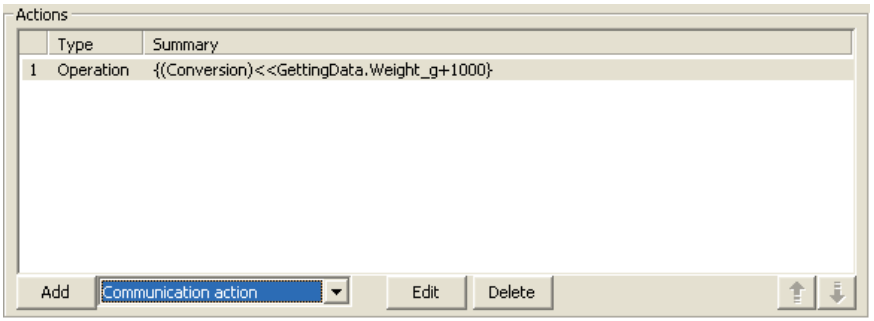
16 Specify the aspects of operation action as shown in the diagram below.



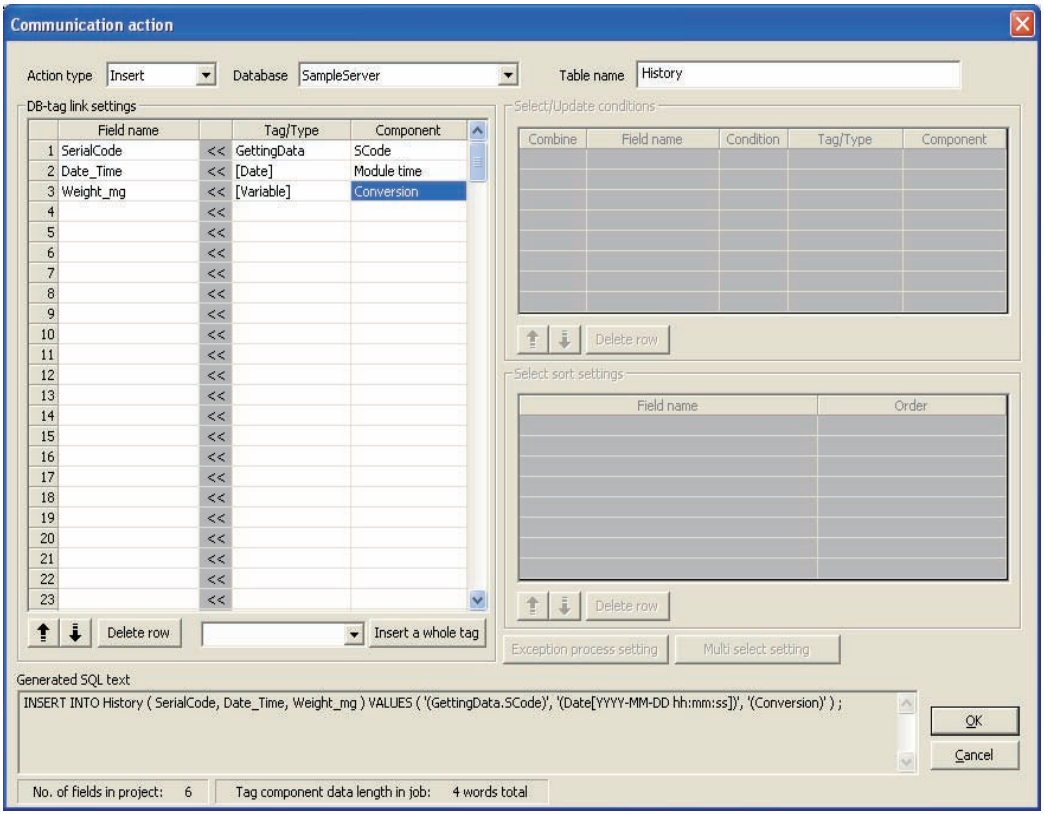
Setting item	Setting description	Setting method
Operation action	See table below	• List selection (Substitution tag, Component, Operation tag (1), Component (2), Operator, Operation tag (3)) • Text input (Component (4))

	Substitution tag	Component	Operation tag	Component	Operator	Operation tag	Component
1	[Variable]	Conversion	GettingData	Weight_g	/	[Number]	1000
			(1)	(2)		(3)	(4)

17 Specify another “action” Select “Communications action” in the list box as shown below and click the [Add] button.



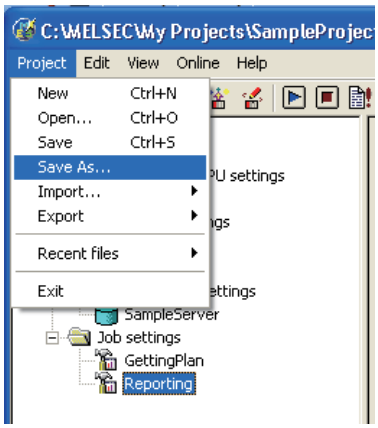
18 Select “Insert” in the “Action Type” combo box list box and specify parameters for the communication action as shown below.
After the setting, SQL sentence to be sent to a database is automatically generated. The generated SQL sentence can be confirmed in the [Generated SQL text] box on the lower part of the screen.



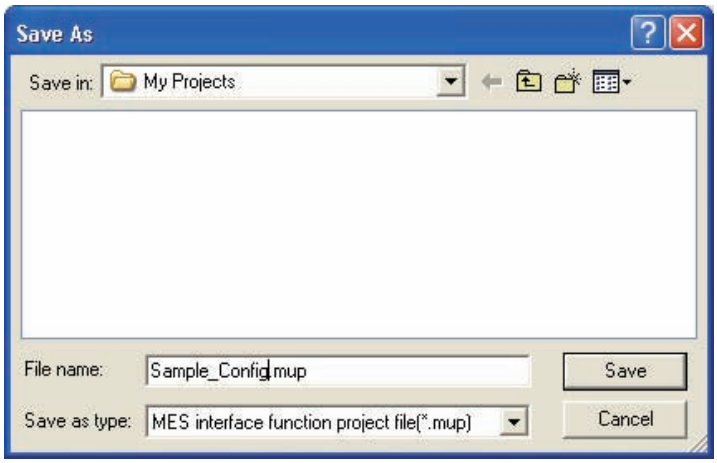
Setting item	Setting description	Setting method
Action type	Insert	List selection
Table name	History	Text input
DB-tag link settings	See table below	• Text input (Field name) • List selection (Tag, Component)

	Field name	Tag	Component
1	SerialCode	GettingData	SCode
2	Date_Time	[Date]	Module time
3	Weight_mg	[Variable]	Conversion

19 Upon the completion of the setting operation, save associated parameters. Select Projects on the menu bar and then click Save As.

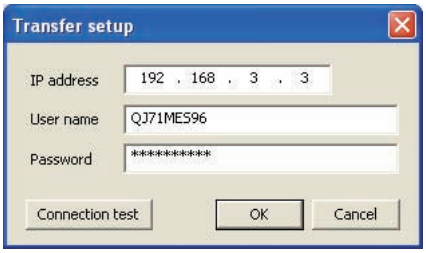


20 Enter “Sample_Config” into the File Name field and save the project.



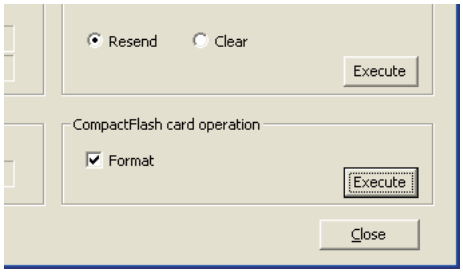
21 Select [Menu] a [Online] a [Remote operation].

22 When the transfer setting screen in the diagram below is shown, input the IP address, user name and password and click the [OK] button.
The default settings are given below.
IP address: 192.168.3.3
User name: QJ71MES96
Password: MITSUBISHI



23 The Compact Flash card is formatted with the following operations.
Formatting the Compact Flash card will erase all data on the Compact Flash card.
Back up required data before executing the following operations.

24 Check the Compact Flash card operation format and click the [Execute] button to format the Compact Flash card.



25 Once formatting is complete, click the [Close] button and close remote operation.
Turn the power of the programmable controller CPU from OFF to ON and restart the MES interface module.

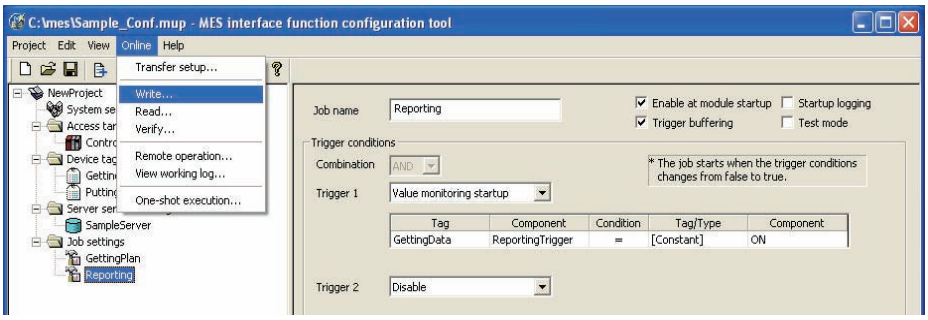
8.3 Operational Check

8.3.1 General Description

The procedure described in this section checks the results of the entire process, from writing parameters by the MES Interface Configuration Tool, to starting QJ71MES96 module, to writing data into the database.

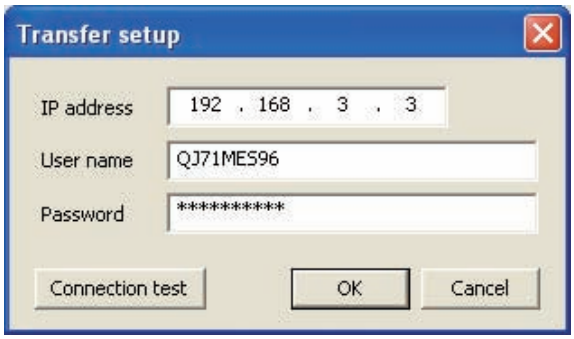
8.3.2 Writing Parameters onto QJ71MES96 Module

1 Select On-line on the menu bar and then click Write. Write parameter settings established in Section 5 into associated fields.



2 When the target setting screen shown below appears, enter a user name and password and click the OK button.

Default settings are as follows:
User name: QJ71MES96
Password: MITSUBISHI



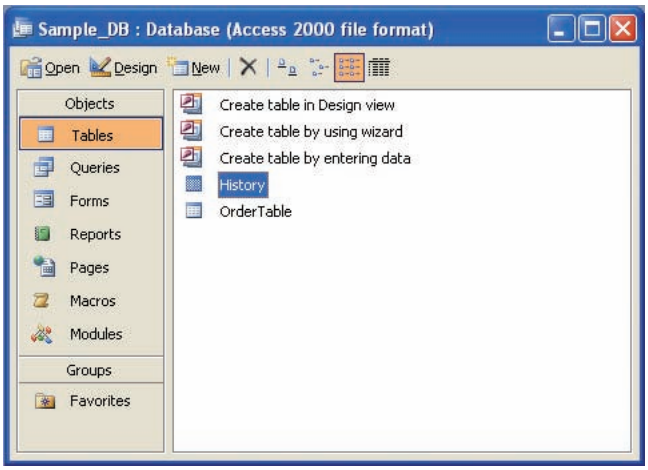
3 Upon the completion of the writing step, reset the sequencer CPU to start the QJ71MES96 module.
After resetting, switch the sequencer CPU to RUN.

4 When the QJ71MES96 module starts, writting data into the database starts automatically.

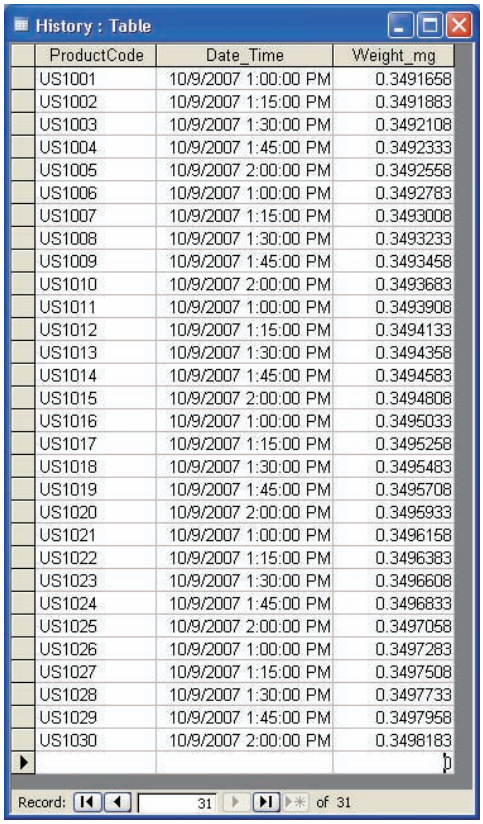
8.3.3 Checking Data Written into DB Table

1. Open "C:/mes/Sample_DB.mdb" with Microsoft® Access 2003.

2. Selecting "History" and clicking the [Open] button will open the History table.



3. After starting the MES interface module, 35 pieces of data are "inserted" into the History table at intervals of 10 seconds. The results can be checked in a chart like the one below.



History : Table

ProductCode	Date_Time	Weight_mg
US1001	10/9/2007 1:00:00 PM	0.3491658
US1002	10/9/2007 1:15:00 PM	0.3491883
US1003	10/9/2007 1:30:00 PM	0.3492108
US1004	10/9/2007 1:45:00 PM	0.3492333
US1005	10/9/2007 2:00:00 PM	0.3492558
US1006	10/9/2007 1:00:00 PM	0.3492783
US1007	10/9/2007 1:15:00 PM	0.3493008
US1008	10/9/2007 1:30:00 PM	0.3493233
US1009	10/9/2007 1:45:00 PM	0.3493458
US1010	10/9/2007 2:00:00 PM	0.3493683
US1011	10/9/2007 1:00:00 PM	0.3493908
US1012	10/9/2007 1:15:00 PM	0.3494133
US1013	10/9/2007 1:30:00 PM	0.3494358
US1014	10/9/2007 1:45:00 PM	0.3494583
US1015	10/9/2007 2:00:00 PM	0.3494808
US1016	10/9/2007 1:00:00 PM	0.3495033
US1017	10/9/2007 1:15:00 PM	0.3495258
US1018	10/9/2007 1:30:00 PM	0.3495483
US1019	10/9/2007 1:45:00 PM	0.3495708
US1020	10/9/2007 2:00:00 PM	0.3495933
US1021	10/9/2007 1:00:00 PM	0.3496158
US1022	10/9/2007 1:15:00 PM	0.3496383
US1023	10/9/2007 1:30:00 PM	0.3496608
US1024	10/9/2007 1:45:00 PM	0.3496833
US1025	10/9/2007 2:00:00 PM	0.3497058
US1026	10/9/2007 1:00:00 PM	0.3497283
US1027	10/9/2007 1:15:00 PM	0.3497508
US1028	10/9/2007 1:30:00 PM	0.3497733
US1029	10/9/2007 1:45:00 PM	0.3497958
US1030	10/9/2007 2:00:00 PM	0.3498183

Record: 31 of 31

CHAPTER 9 FAQs

9.1 Troubleshooting by symptom

9.1.1 When using MES Interface Function Configuration Tool

This section explains troubleshooting information on the setting of MES Interface Function Configuration Tool.

(1) Common to all settings

Symptom	Checked item	Corrective action
Unable to connect MES Interface Function Configuration Tool to the MES interface module.	Is there any disconnection in the connection route?	• Connect the cables properly.
	Is the IP address setting correct?	• Correct the IP address setting.
	Is the user name and password setting correct?	• Correct the user name and password setting.
	Is the IP address duplicated?	• Correct the IP address setting.
	Is there a firewall and/or a proxy server in the connection route?	• Ask your network administrator about the firewall and proxy server settings.
	Is the MES interface module connected to the network? (Network connection status (X4) = ON)	• Connect the MES interface module to the network.
	Is it in "Online" mode?	• Change the mode to "Online".
	Is there any problem on the computer?	• Replace it with another computer.
MES Interface Function Configuration Tool will not start.	Have five MES Interface Function Configuration Tools already started?	• Terminate any of the MES Interface Function Configuration Tools and then start another. • Up to five MES Interface Function Configuration Tools can be started.
Unable to import a project file.	The specified project file is incorrect or corrupted.	• Specify a correct project file.
	Is there any inconsistency in the setting?	• Check the setting and correct it if any.
	Did the number of settings exceed the upper limit?	• Check the number of settings.
Unable to import a CSV file.	Is the CSV file description correct?	• Correct the CSV file description.
	Is there any inconsistency in the setting?	• Check the setting and correct it if any.
	Did the number of settings exceed the upper limit?	• Check the number of settings.
[Device tag name] is not displayed for the setting item by which data are written to a tag.	Is the tag set to data-write-disabled?	• Set the tag to data-write-enabled.
All the text is not displayed in a table. (The text display is truncated.)	Is the column to narrow?	• Adjust the column width of the table.

(2) [System setting]

Symptom	Checked item	Corrective action
A desired device tag name is not displayed in [DB buffering settings].	Is the tag set to data-write-disabled?	• Set the tag to data-write-enabled.

(3) [Access target CPU settings]

Symptom	Checked item	Corrective action
Unable to change or delete an item in [Access target CPU settings].	Is it the first item?	• If it is any item other than the first one, change the item or add an item. • Since the control CPU is set as the first item, deletion or setting change is not allowed for it. (Only the CPU name can be changed.)
	Is the selected item used in [Device tag settings]?	• As the error dialog box appears, identify the location, stop using it for another item, and then delete the item. • An item used for another item is unable to be deleted.

(4) [Device tag settings]

Symptom	Checked item	Corrective action
Unable to change or delete an item in [Device tag settings].	Is the selected item used in [Job settings]?	• As the error dialog box appears, identify the location, stop using it for another item, and then delete the item. • An item used for another item is unable to be deleted.
	Is the selected item used in [DB buffering settings] of [System setting]?	
	Is the selected item used in [Access error notification setting] of [Server service settings]?	
Unable to set or change [Device tag name].	Is the same name used for [Server service name] or another [Device tag name]?	• Because a unique name must be used for [Server service name] and [Device tag name], use a different name.
Unable to select [High-speed sampling].	Is [High-speed sampling] selected in another [Device tag settings]?	• Uncheck the [High-speed sampling] checkbox in the [Device tag settings]. • Registration of [High-speed sampling] is limited to one tag only.
	Is any other than the first item (Control CPU) in [Access target CPU settings] selected in [CPU name] in [Component setting input]?	• Delete the component setting with selection of any other than the first item, or change the setting so that the first item will be used for it. • If [High-speed sampling] is selected, only the first item in [Access target CPU settings] (Control CPU) can be selected for the tag component.
	Is the number of device points set in the tag setting more than 96?	• Reduce the number of device points in the tag setting to 96 or less. • When [High-speed sampling] is selected, set tag component devices within the total of 96 points.
Unable to change the [Prohibit data writing] setting.	Is the tag used for a setting item by which data are written to the tag? • [Completion notification] of [Handshake operation], substitution tags of [Select] in [Communication action], etc.	• Stop using the tag for the setting item by which data are written to the tag, before changing the setting. • If the tag is used for a setting item by which data are written to the tag, unchecking the [Prohibit data writing] box is not allowed.

(5) [Server service settings]

Symptom	Checked item	Corrective action
Unable to set or change [Server service name].	Is the same name used for another [Server service name] or [Device tag name]?	• Because a unique name must be used for [Server service name] and [Device tag name], use a different name.
Unable to change [Server type].	Is the [Server service name] same as the existing one?	• Correct the [Server service name].
A desired device tag name is not displayed in [Access error notification setting].	Is the tag set to data-write-disabled?	• Set the tag to data-write-enabled.

(6) [Job settings]

Symptom	Checked item	Corrective action
Unable to set [DB buffering settings].	Is there any Select action set for the job?	• Do not use Select actions in the job where DB buffering is enabled. • The DB buffering is not available for jobs performing Select actions.
Unable to set a new variable.	Are there 64 variables that were already defined in the job?	• Delete any unnecessary variable settings of the job. • Up to 64 variables can be set for one job.
Unable to select [Trigger 2] in [Trigger conditions].	Is [Handshake operation] selected for [Trigger 1]?	• Select any other than [Handshake operation] for [Trigger 1]. • When [Handshake operation] is selected, selection is not allowed for [Trigger 2].
A desired device tag name is not displayed in [Completion notification] of [Handshake operation].	Is the tag set to data-write-disabled?	• Set the tag to data-write-enabled.
A desired device tag name is not displayed in the field of Substitution tag for [Select] in [Communication action].		
A desired device tag name is not displayed in the field of Substitution tag in [Exception processing] of [Communication action].		
A desired device tag name is not displayed in the field of Substitution tag in [Operation action].		
A desired device tag name is not displayed under [Notify errors (job cancellation) that occur during job execution].		
Unable to set [Exception processing] in [Communication action].	Is the DB buffering enabled?	• Disable the DB buffering.
	Is [Insert] set for [Action type]?	• Set any other than [Insert] for [Action type].

(7) [Online]

Symptom	Checked item	Corrective action
Unable to write a project to the MES interface module.	Is the total number of fields in the project more than 8192?	• Delete any unnecessary field settings. • Up to 8192 fields can be set within one project.
Failed in online operation.	Is the IP address set in [Transfer setup] of [Online] correct?	• Select [Online] - [Transfer setup] and correct the setting. • Perform the online operation for the MES interface module selected from [Online] - [Transfer setup].
	Send a PING request from the configuration computer to the IP address of the MES interface module. Is there a response?	• If no response is returned, check if the module is powered up or if the network is properly connected.
	Has the account set in [Transfer setup] of [Online] been registered to the MES interface module?	• Select [Online] - [Transfer setup] and correct the setting. • Specify the account that is registered in the MES interface module.
Unable to select [One-shot execution] from [Online].	Was the job for one-shot execution selected?	• Select the job for one-shot execution, and then select [Online] → [One-shot execution] from the menu.
Failed to format the CompactFlash card.	Check for an error code in [System monitor] of GX Developer.	• By the error code, check the error details and take corrective actions. • Re-execute formatting of the CompactFlash card.
	Is the MES interface module operation stopped?	• Stop the MES interface module operation, and then execute formatting.
It takes time to write the settings to the MES interface module.	Is the MES interface module operation in the [Stop] state?	• Stop the MES interface module operation, and then write the settings.

9.1.2 When using DB Connection Service Setting Tool

This section explains troubleshooting information on the setting of DB Connection Service Setting Tool.

Symptom	Checked item	Corrective action
Unable to start DB Connection Service Setting Tool.	Has another DB Connection Service Setting Tool been already started?	• Terminate the already started DB Connection Service Setting Tool. • Only one DB Connection Service Setting Tool can be activated.
Unable to reflect the setting.	Was a user ID having the administrator authority used for the login?	• Log in again with a user ID having the administrator authority.
	Is there no permitted IP address?	• Uncheck the [Limit IP addresses permit to connect] checkbox, or add an IP address for which connection is permitted
Unable to export a file.	Is there no permitted IP address?	• Uncheck the [Limit IP addresses permit to connect] checkbox, or add an IP address for which connection is permitted.
An access log output error is recorded in [Event Viewer] of [Administrative Tools] in Windows®.	Is the file set in [Output destination] read-only?	• Correct the file specification.
	Is the access to the folder containing the file set in [Output destination] authorized?	• Check the right of access to the folder.
	Is the drive space of the server computer full?	• Check the free space on the drive.
An SQL failure log output error is recorded in [Event Viewer] of [Administrative Tools] in Windows®.	Is the file set in [Output destination] read-only?	• Correct the file specification.
	Is the access to the folder containing the file set in [Output destination] authorized?	• Check the right of access to the folder.
	Is the drive space of the server computer full?	• Check the free space on the drive.
[The DBConnector service failed to start due to the following error: The system cannot find the file specified.] is recorded in [Event Viewer] of [Administrative Tools] in Windows®.	Does the following file exit in the installing destination directory of [DB connection service and Setting tool]? [MESIF\DBConnector.exe]	• Uninstall [DB connection service and Setting tool] and restart the computer before reinstallation.
	Has the computer been restarted after uninstalling [DB connection service and Setting tool]?	

9.1.3 When operating the MES interface module

This section shows the troubleshooting of problems that may arise during operation of the MES interface module.

(1) Troubleshooting about LED indication and I/O signals

Symptom	Checked item	Corrective action
The RUN LED does not turn on.	Is the module in preparation?	• Wait for startup of the module.
	Is the Watchdog timer error (X1F) ON?	• If a watchdog timer error is identified, please consult your local Mitsubishi representative, explaining a detailed description of the problem.
The ERR. LED is on or flashing.	Is the battery connected? Or, has the battery voltage dropped?	• Check the battery connection. • Replace the battery.
	Is any of the error detection signals (X11, X12, X16 and X1C) ON? X11: Sampling error X12: Information linkage error X16: Access target CPU error X1C: Another error	• According to the error code obtained by the error detection shown on the left, identify the error cause and take corrective actions.
	Check the error code in [System monitor] of GX Developer.	• By the error code, identify the error and take corrective actions.
Module READY (X0) does not turn ON, or it takes time to turn ON.	Is the module in preparation?	• Depending on the number of items set in [Access target CPU settings], it may take several minutes until X0 turns ON.
	Are there many files in the installed CompactFlash card?	• If many files are stored in the CompactFlash card, it takes time to turn X0 ON. • Delete unnecessary files from the CompactFlash card.
CompactFlash card status (X1) does not turn ON, or it takes time to turn ON.	Is file access stopped? (X2 is ON?)	• Cancel the file access stop.
	Are there many files in the installed CompactFlash card?	• If many files are stored in the CompactFlash card, it takes time to turn X1 ON. • Delete unnecessary files from the CompactFlash card.

(2) Troubleshooting about network connection

Symptom	Checked item	Corrective action
Unable to access the MES interface module.	Is it in "Online" mode?	• Change the mode to "Online".
	Is the MES interface module connected to the network? (X4 = ON)	• Connect the MES interface module to the network.
	Is there any disconnection in the connection route?	• Connect the cables properly.
	Is the IP address duplicated?	• Correct the IP address setting.
	Is there a firewall and/or a proxy server in the connection route?	• Ask your network administrator about the firewall and proxy server settings.
	Is there a problem with the computer?	• Replace it with another computer.

(3) Troubleshooting about communication between the MES interface module and access target CPU

Symptom	Checked item	Corrective action
Unable to access another station via Q series E71.	Is a remote password set for the GX Developer communication port (UDP/IP) of the Q series E71 on the target or relay station?	• Remove the remote password set for the GX Developer communication port (UDP/IP) of the Q series E71 on the target or relay station.
An error occurs when accessing the Redundant CPU.	Is MES interface accessing the Redundant CPU of other station?	• Mount a MES interface module to the extension base unit of the Redundant CPU that is access target and access it. The MES interface cannot access the Redundant CPU of other station.
	Is system switching consecutively occurring?	• Review the system so that system switching will not occur consecutively.

(4) Troubleshooting about the DB interface function

Symptom	Checked item	Corrective action
The DB interface function does not work.	Is "Running" displayed in the status indication area of [Remote operation]?	• If "Stopped" is displayed, execute [Restart] from [Remote operation], turn the power OFF and ON, or reset the programmable controller CPU.
No communication has been made with the server computer.	Was the computer restarted after installing relational database?	• Restart the computer.
	Is the port No. set in [Service port] of DB Connection Service Setting Tool the same as the port No. set in [Port No.] of [Server service settings] of MES Interface Function Configuration Tool?	• Set the same value. Communication is not available if different port numbers are set.
	Is the firewall function of the operating system (OS) or security software enabled on the server computer?	• Disable the firewall setting. Or, enable the communication of the port number for the TCP/IP port to be used (Default: 5112).
	Is the port specified in [Service port] of DB Connection Service Setting Tool being used for the database or any other application?	• Change the port number to another that is not being used for the database or any other application.
	Has any Check Point software been installed in the server computer?	• Uninstall the Check Point software.
	Is the ODBC setting of the database correct?	• Correct the ODBC setting of the database.
In the tag component where statistical processing is set, the average, maximum or minimum value to be calculated is reset.	Is there any setting that enables data writing to the tag component where statistical processing is set?	• Disable the write setting. • Writing data to the tag component where statistical processing is set will reset the statistical values.

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Symptom	Checked item	Corrective action
Values will not be stored in the database.	Has an error occurred in [Error log] of [Working log]?	• If an error has occurred, identify the error cause and take corrective actions.
	When trigger conditions of a job with [Startup logging] setting are met, is the startup logged in [Event log] of [Working log]?	• If no startup data is logged, refer to the following: Refer to the symptom item "Job will not start up."
	If the startup log is identified in the above case, is there an error in [Error log] of [Working log]?	• If an error has occurred, identify the error cause and take corrective actions.
	In [Change job status] of [Remote operation], is [Disable writing to database] set?	• Enable writing to the database.
	Has an error occurred in the access log of DB Connection Service?	• If an error has occurred, identify the error cause and take corrective actions.
	Are the relevant records or table locked on the database when inserting or updating data?	• Unlock them on the database and execute it. If they are locked, the execution is delayed until they are unlocked.
	In [Connection result of previous job execution] of [Remote operation], is "Connected" displayed under [Result]?	• If "Disconnected" is displayed, correct the setting of [Server service settings]. • Check the network connection route to the database server computer.
	Is the [Database type] setting in [Server service settings] of MES Interface Function Configuration Tool correct?	• Set the database being used.
	Is No. of updated or inserted records indicated as 0 in the access log of DB Connection Service?	• Check if [Select/Update conditions] are met. • Check if there is any missing field into which a value is to be inserted. • Check if the uniqueness constraint of the database (PRIMARY KEY constraint) is violated. • Check if the value to be stored exceeds the number of characters defined for the field.
Database values will not be stored in programmable controller devices.	Has an error occurred in [Error log] of [Working log]?	• If an error has occurred, identify the error cause and take corrective actions.
	When trigger conditions of a job with [Startup logging] setting are met, is the startup logged in [Event log] of [Working log]?	• If no startup data is logged, refer to the following: Refer to the symptom item "Job will not start up."
	In [Change job status] of [Remote operation], is [Disable writing to PLC device] set?	• Enable writing to programmable controller devices.
	Has an error occurred in the access log of DB Connection Service?	• If an error has occurred, identify the error cause and take corrective actions.

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Symptom	Checked item	Corrective action
Database values will not be stored in programmable controller devices.	Is No. of selected records indicated as 0 in the access log of DB Connection Service?	• Check if [Select/Update conditions] are met.
	Was the relevant device value manipulated in the programmable controller CPU?	• Do not manipulate the device value in the programmable controller CPU at the time of writing from the MES interface module.
	Is the number of databases set for the database server computer sufficient?	• Correct the set number of databases, or change the number of [Server service settings] items to the set number of databases. • One database connection must be used for one item of [Server service settings].
Job will not start up.	Has an error occurred in [Error log] of [Working log]?	• If an error has occurred, identify the error cause and take corrective actions.
	Did the [Trigger conditions] change from false to true completely?	• Correct the [Trigger conditions]. • Start the job when the [Trigger conditions] change from false to true.
	Did the [Combination] of [Trigger conditions] change from false to true completely?	• Correct the [Trigger conditions]. • Start the job when the [Combination] of [Trigger conditions] change from false to true.
	When [Value monitoring startup] is set for [Trigger conditions], is the time for the monitoring target device value change long enough for the sampling interval of the device tag?	• Increase the time for the monitoring target device value change. (Latch it in the sequence program.) • Shorten the sampling interval of the device tag.
	In [Change job status] of [Remote operation], is the job set to be disabled?	• Enable the job. • To enable the job at startup of the module, select [Job settings] - [Enable at module startup].
	Is there any other ob that is being executed?	• Terminate the job that is in execution, or use another [Server service settings] item. • If a job uses the same [Server service settings] item that is currently used for another job, the job is not executed until another job execution is completed.
	Has an error or job cancellation occurred during job execution?	• If an error has occurred, identify the error cause and take corrective actions. • When the job uses a tag component for which [Moving average], [Moving maximum] or [Moving minimum] is specified, check if sampling for the specified number of times is completed.

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Symptom	Checked item	Corrective action
The program specified by the program execution function is not executed.	Has an error occurred in [Error log] of [Working log]?	• If an error has occurred, identify the error cause and take corrective actions.
	Was the Windows® account specified in [Server service settings] used to log on the application server computer once or more?	• Use the account that has been used to log on once or more. • An account that has not been used before cannot be used.
	Was the password of the Windows® account specified in [Server service settings] set empty?	• Set a password of the account, or use another account that does not have an empty password. • An account that has an empty password cannot be used.
	Was a program executed which requires administrator privileges (users in the administrators group) for execution?	• Programs which require administrator privileges (users in the administrators group) cannot be executed. • Specify a program which does not require administrator privileges for execution.
	Was the program associated with the display executed with the application server personal computer logged off?	• When executing the program associated with the display, ensure that the application server personal computer is logged on.
	Was the program associated with the display executed with multiple users logged on to the application server personal computer?	• When executing the program associated with the display, only one user logged on to the application server personal computer is displayed on the program screen. Log all users off of the application server personal computer, and then execute with only one user logged on.
Job startup is delayed.	Were the trigger conditions for multiple jobs met concurrently?	• If the trigger conditions for multiple jobs are met concurrently, startup of some job may be delayed.
	Was the job execution time prolonged?	• If the job execution time is prolonged, startup of the next job may be delayed.
	Was the value in the Monitoring interval timeout count area (buffer memory address: 11510) increased?	• Check and correct the number of job settings or trigger condition settings.
Selecting [Resend] from [DB buffering operation] of [Remote operation] will not resend buffered SQL texts of the job for which manual resend is selected.	Is there any problem on the connection routes to all of the database server computers.	• Check the connections with all of the database server computers. • When buffered SQL texts are to be sent to more than one destination, unless the communication with all the database server computers is recovered, resending is not started.
	Are the DB Connection Services in all the database server computers operating normally?	• Check each of the DB Connection Services in all the database server computers. • When buffered SQL texts are to be sent to more than one destination, unless DB Connection Services in all the database server computers are operating, resending is not started.

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Symptom	Checked item	Corrective action
Data such as DB buffering status, No. of DB bufferings, DB buffer full, or DB buffer utilization will not be stored in the tag component which is selected in [DB buffering settings] of [System setting].	Was the setting that enables data writing to the tag component made in [Job settings]?	• Select another tag component, or check the [Job settings] and disable data writing to the relevant tag component.
	Was the device value of the relevant tag component manipulated in the programmable controller CPU?	• Specify another device. Or do not manipulate the relevant device value in the programmable controller CPU.
Failed to communicate with the server computer several times after module startup.	Was the programmable controller powered ON immediately after OFF?	• Turn OFF the programmable controller, and after several minutes, turn it ON.
	Is there any problem on the server computer?	• Restart the server computer.

(5) Troubleshooting about the XML processing function

Symptom	Checked item	Corrective action
The XML processing function does not work.	Is "Running" displayed in the status indication area of [Remote operation]?	• When "Stopped" is displayed, execute [Restart] from [Remote operation]. Alternatively, turn the power OFF and then ON, or reset the programmable controller CPU.

(6) Troubleshooting about the time synchronization function

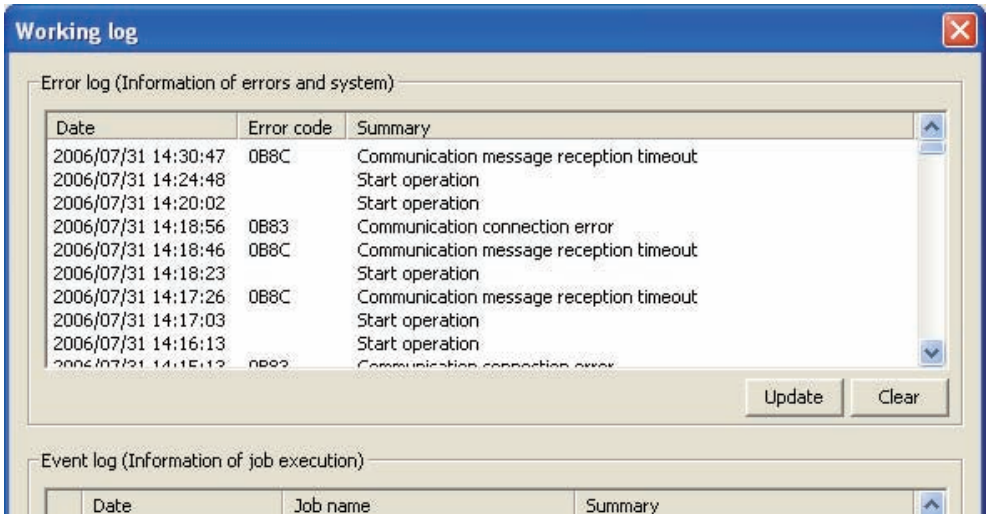
Symptom	Checked item	Corrective action
Time is not synchronized with the SNTP server computer.	Is the [SNTP server address] setting correct?	• Correct the [SNTP server address] setting.

CHAPTER 10 CONCISE ERROR CODE LIST

10.1 Viewing MES Interface Module Error Codes

Check MES interface module error codes with the information linking function setting tool.

1. Select [Online] from the menu a [Operation History] menu.
2. The [Operation History] will appear. Proceed referring to the explanation below.



(1) Error log

Refer to the error log (error and system information) and check the error codes.

Item	Description
Date*1*2	The date and time of the error (information) occurrence is displayed.
Error code*3	The code for the error is displayed.
Summary	An error message and system information is displayed.

*1. When using SNTP with synchronized time, the time of the No. 1 CPU will displayed for the interval from module startup until the time query to the SNTP server succeeds.
*2. Date will not be displayed for errors (information) occurring before the time from the No. 1 CPU is obtained.
*3. Error codes will not be displayed in the case of system information.

(2) Error code updates

1. Clicking the [Update] button will update the error codes.

(3) Error log clear

1. Clicking the [Clear History] button will clear the error log.

10.2 Viewing Server Computer Error Codes

The method of checking server computer error codes is shown below.

(1) DB connection service access log

Open the log file below with a text editor and check the error codes.
"C:\MELSEC\MESIF\dbConnector.log"

(2) DB connection service SQL failure log

Open the log file below with a text editor and check the error codes.
"C:\MELSEC\MESIF\sqlFailed.log"

(3) Windows event log

1. Select [Start] a [Control Panel] from the Windows Start menu to display the Control Panel.
2. Select [Performance and Maintenance] a [Administrative Tools] to display Administrative Tools.
3. Double click on [Event Viewer], check the DB connection service error codes, check the error and take corrective action.

10.2.1 Log Format

The log format used in the explanations in this section is shown below.

[Date] [Error Code] message line feed

Item				Description
Output character	[Date]	Year	bol 1-4th bytes	4 integers (single-byte numbers)
		Year-month break	bol 5th byte	"/" (single-byte slash: 2Fh)
		Month	bol 6-7th bytes	2 integers (01-12) (single-byte numbers)
		Month-day break	bol 8th byte	"/" (single-byte slash: 2Fh)
		Day	bol 9-10th bytes	2 integers (01-31) (single-byte numbers)
		Day-hour break	bol 11th byte	" " (single-byte space: 20h)
		Hour	bol 12-13th bytes	2 integers (00-23) (single-byte numbers)
		Hour-minute break	bol 14th byte	":" (single-byte colon: 3Ah)
		Minute	bol 15-16th bytes	2 integers (00-59) (single-byte numbers)
		Minute-second break	bol 17th byte	":" (single-byte colon: 3Ah)
		Second	bol 18-19th bytes	2 integers (00-59) (single-byte numbers)
		Second-millisecond break	bol 20th byte	"." (single-byte period: 2Eh)
		Millisecond	bol 21-23rd bytes	3 integers (00-999) (single-byte numbers)
	Error code millisecond break		bol 24th byte	" " (single-byte space: 20h)
	[Error Code]		bol 25-34th bytes	"0x" + 8 hexadecimal single-byte digits
	Error code message break		bol 35th byte	" " (single-byte space: 20h)
	Message		bol 36th byte on	Follow specifications for each log.
	Line feed		eol	CR + LF(0Dh, 0Ah)

(1) Access Log

Internal communication between the MES interface module and the DB connection service is output in the access log.
Access log details are shown here.

(a) Service start/end

• Start

Item	Description
Output log format	[Date] [Error Code] Service Start
Example	2005/07/01 12:00:00.000 0xL00000000 Service Start

• End

Item	Description
Output log format	[Date] [Error Code] Service Stop
Example	2005/07/01 12:00:00.000 0xL00000000 Service Stop

(b) MES interface module connection/disconnection

• Connection

Item	Description
Output log format	[Date] [Error Code] SID [Section ID]:MIFWS Connected:[Connection origin IP]:[Connection target data source]:[Connection ID]
Example	2005/07/01 12:00:00.000 0xL00000000 SID 0:MIFWS Connected:192.168.3.3:DataSource:ID

• Disconnection

Item	Description
Output log format	[Date] [Error Code] SID [Section ID]:MIFWS Disconnected:[Connection origin IP]:[Connection target data source]:[Connection ID]
Example	2005/07/01 12:00:00.000 0xL00000000 SID 0:MIFWS Disconnected:192.168.3.3:DataSource:ID

(c) Database connection/disconnection

For details on [Database error number] and [Database cause of error message] in the output log format at the time of failure, check each database's manual.
Depending on the [Error code], the Database Messages below may not be output.
Check the error and take corrective action according to the error code.

• Connection

Item		Description
Output log format	Success	[Date] [Error Code] SID [Section ID]:DB Connect:[Connection target data source]:[Connection ID]:Success
	Failure	[Date] [Error Code] SID [Section ID]:DB Connect:[Connection target data source]:[Connection ID]:Failed Database Message [Database error number][Database cause of error message]
Example	Success	2007/10/01 12:00:00.000 0xL00000000 SID 00000001:DB Connect:DataSource:ID:Success
	Failure	2007/10/01 12:00:00.000 0xL20400022 SID 00000001:DB Connect:DataSource:ID:Failed Database Message 0xL00000319 [Oracle][ODBC][Ora]ORA-01017: invalid username/password: logon denied

• Disconnection

Item		Description
Output log format	Success	[Date] [Error Code] SID [Section ID]:DB Disconnect:[Connection target data source]:[Connection ID]:Success
	Failure	[Date] [Error Code] SID [Section ID]:DB Disconnect:[Connection target data source]:[Connection ID]:Failed Database Message [Database error number][Database cause of error message]
Example	Success	2007/10/01 12:00:00.000 0xL00000000 SID 00000001:DB Disconnect:DataSource:ID:Success

(d) SQL statement receiving/processing results

For details on [Database error number] and [Database cause of error message] in the output log format at the time of failure, check each database's manual.
Depending on the [Error code], the Database Messages below may not be output.
Check the error and take corrective action according to the error code.

• SELECT

Item		Description
Output log format	Success	[Date] [Error Code] SID [Section ID]:SQL<[SQL statement]>:Success ([selection code number])
	Failure	[Date] [Error Code] SID [Section ID]:SQL<[SQL statement]>:Failed Database Message [Database error number][Database cause of error message]
Example	Success	2007/10/01 12:00:00.000 0xL00000000 SID 00000001:SQL<SELECT COL from TABLE>:Success(1)
	Failure	2007/10/01 12:00:00.000 0xL20600023 SID 00000001:SQL<SELECT COLL from TABLE>:Failed Database Message 0xL00000388 [Oracle][ODBC][Ora]ORA-00904: "COLL": invalid identifier

• UPDATE

Item		Description
Output log format	Success	[Date] [Error Code] SID [Section ID]:SQL<[SQL statement]>:Success ([update code number])
	Failure	[Date] [Error Code] SID [Section ID]:SQL<[SQL statement]>:Failed Database Message [Database error number][Database cause of error message]
Example	Success	2007/10/01 12:00:00.000 0xL00000000 SID 00000001:SQL<UPDATE TABLE SET COL = '1'>:Success(1)
	Failure	2007/10/01 12:00:00.000 0xL20600023 SID 00000001:SQL<UPDATE TABLE SET COL = 'COL'>:Failed Database Message 0xL000006ba [Oracle][ODBC][Ora]ORA-01722: invalid number

• INSERT

Item		Description
Output log format	Success	[Date] [Error Code] SID [Section ID]:SQL<[SQL statement]>:Success ([insert code number])
	Failure	[Date] [Error Code] SID [Section ID]:SQL<[SQL statement]>:Failed Database Message [Database error number][Database cause of error message]
Example	Success	2007/10/01 12:00:00.000 0xL00000000 SID 00000001:SQL<INSERT INTO TABLE (COL) VALUES ('1')>:Success(1)
	Failure	2007/10/01 12:00:00.000 0xL20600023 SID 00000001:SQL<INSERT INTO TABLEE (COL) VALUES ('1')>:Failed Database Message 0xL000003ae [Oracle][ODBC][Ora]ORA-00942: table or view does not exist

• COMMIT

Item		Description
Output log format	Success	[Date] [Error Code] SID [Section ID]:COMMIT:Success
	Failure	[Date] [Error Code] SID [Section ID]:COMMIT:Failed Database Message [Database error number][Database cause of error message]
Example	Success	2007/10/01 12:00:00.000 0xL00000000 SID 00000001:COMMIT:Success

• ROLLBACK

Item		Description
Output log format	Success	[Date] [Error Code] SID [Section ID]:ROLLBACK:Success
	Failure	[Date] [Error Code] SID [Section ID]:ROLLBACK:Failed Database Message [Database error number][Database cause of error message]
Example	Success	2007/10/01 12:00:00.000 0xL00000000 SID 00000001:ROLLBACK:Success

• GetNext (request for next record)

Item		Description
Output log format	Success	[Date] [Error Code] SID [Section ID]:GetNext:Success
	Failure	[Date] [Error Code] SID [Section ID]:GetNext:Failed Database Message [Database error number][Database cause of error message]
Example	Success	2007/10/01 12:00:00.000 0xL00000000 SID 00000001:GetNext:Success

(e) Program execution receiving/processing result

Item		Description
Output log format	Success	[Date] [Error Code] SID ProgramExec:[Connection origin IP]:<[Command line]>:Success([Return value])
	Failure	[Date] [Error Code] SID SID ProgramExec:[Connection origin IP]:<[Command line]>:Failed
Example	Success	2007/10/01 12:00:00.000 0xL00000000 ProgramExec: 192.168.3.3:<hoge.exe>:Success(0)

(2) SQL failure log

When an error occurs while executing SQL statements in the database, the error details are output to the SQL failure log.
SQL failure log details are shown below.
For details on [Database error number] and [Database cause of error message] in the output log format at the time of failure, check each database's manual.
Depending on the [Error code], the Database Messages below may not be output.
Check the error and take corrective action according to the error code.

Item	Description
Output log format	[Date] [Error Code] [Connection target data source]:[SQL statement] Database Message [Database error number][Database cause of error message]
Example	2007/10/01 12:00:00.000 0xL00000000 DataSource:INSERT INTO TABLE (COL) VALUES (")>: Database Message 0xL00000388 [Oracle][ODBC][Ora]ORA-00904: "COL" :invalid identifier

10.3 Error Code List

The error code list is shown below.

10.3.1 Error codes for the MES interface module

Error code	Error name	Action
0001h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0002h	Response time-out error	• Correct [Access target CPU settings]. • Check the communication cable status and access target CPU status.
0041h to 0044h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0045h	Processing code error	• Check the CPU(s) on the access route.
0046h	Station No. specification error	• Check the station number setting in [Access target CPU settings].
0047h	Receive data error	• Check the CPU(s) on the access route.
0048h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0049h		
004Dh		
004Eh		
0050h		
0051h		
0055h	Channel No. error	• Check the Ethernet module setting of the access target CPU.
0064h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0065h	Routing parameter error	• Set routing parameters to the CC-Link IE, MELSECNET/H, and/or MELSECNET/10 module(s).
0066h	Data send error	• Check the CPU(s) on the access route.
0067h	Data receive error	
0080h	Read size error	
0081h	Device type error	• Correct the device type entered in [Device tag settings].
0082h	Device No. error	• Correct the device number entered in [Device tag settings].
0083h	Device point error	• Check the CPU(s) on the access route.
0084h	Write size error	
0085h	Link parameter error	• Set a correct link parameter for the programmable controller CPU(s) on the access route.
0087h to 0089h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
00D2h	RUN time disable error	• Check the CPU(s) on the access route.

Error code	Error name	Action
00D4h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
00D7h	Receive data length error	• Check the cables on the access route.
00D8h	Protocol error	
00D9h	Address error	• Check the CPU(s) on the access route.
00DBh	Write error	
00E0h	Station No. error	• Check the station number setting in [Access target CPU settings].
00E1h	Processing mode error	• Check the PLC series in [Access target CPU settings].
00E2h	Intelligent function module specification error	• Correct the "U□\G□" buffer memory data in [Device tag settings].
00E3h	Other data error	• Check the CPU(s) on the access route.
00E4h	Link specification error	• Check the access route referring to the accessible range.
00E8h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
00E9h	Link timeout	• Reconnect the access target on the access route.
00EAh	Special module BUSY	• Examine the hardware of the intelligent (or special) function module.
00ECh	Access target BUSY	• Check the access target.
00F0h	Link error	• Restore the link to connect the station on the access route.
00F1h	Special module bus error	• Examine the hardware of the intelligent (or special) function module.
00F2h	Special module timeout	
0100h to 0104h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0110h		
0112h		
0180h	Switch setting error	• Check the intelligent function module switch setting. • Conduct the hardware test again.

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Error code	Error name	Action
0181h	ROM check sum error	• Conduct the hardware test again.
0182h	RAM test error	
0190h	Timeout error	• Hardware error • Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0191h	Communication error	
0192h	Comparison error	
0193h	In-frame position error	
0200h to 0203h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0210h		
0300h		
0301h	Setting file read error	• Install a CompactFlash card. • Retry writing the setting with MES Interface Function Configuration Tool.
0400h to 0402h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0480h	CF card initialization error	• Check if the CompactFlash card was inserted properly. • Replace the CompactFlash card.
0481h	CF card drive data retrieve error	
0490h to 0493h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0494h	CF card format error	• Check if the CompactFlash card was inserted properly. • Check the CompactFlash card for any error. (Perform check disk on the computer.)
0495h	CF card check error	• Check the CompactFlash card for any error. (Perform check disk on the computer.)
0496h	CF card response error	• Replace the CompactFlash card with another.
04D0h	Battery error	• Replace the battery. • Check the battery connection.
0501h	CPU fault detected	• Check the CPU status of module mounting station.
0502h	APS mismatch	• Retry the transmission. • Correct [Access target CPU settings].
0604h	Setting file error	• Retry writing the setting with MES Interface Function Configuration Tool.
0607h		
060Ah	Component device error	• Correct the device specified in the "component setting".
0610h	Access target CPU setting error	• Initialize the module, and then configure the [Access target CPU settings] again.
0617h	Module stop error	• Remove the cause of the module stop error, and reset the programmable controller CPU.
0618h	Setting update time-out error	• Reexecute the setting update. • Reset the programmable controller CPU.
0619h	Device name error	• Refer to the accessible device list, and reenter a correct device name.
0626h	Multiple CPU setting error	• Correct [Access target CPU settings].
0627h	Network communication route error	
0628h	Tag sampling interval setting error	• Correct [Device tag settings].
0629h	Setting file error	• Retry writing the setting with MES Interface Function Configuration Tool.
062Ah		
062Ch		
062Dh	No CPU specification error	• Specify an existing CPU as the access target.
062Eh	Data type incorrect error	• Correct the "component setting".
062Fh	Excessive number of characters error	
0630h	Decimal/Exponential form setting error	
0631h	Setting file error	• Retry writing the setting with MES Interface Function Configuration Tool.
0649h		
064Bh	Excessive number of device points for high speed sampling tag	• Change the setting so that the total device points will not exceed 96.
064Ch	High speed sampling tag component registration error	• Ensure a system area in the program memory of the programmable controller CPU. (Format the PLC memory.) • For the Redundant CPU, check the system area for the Redundant CPU of both systems.
0650h	Setting file error	• Retry writing the setting with MES Interface Function Configuration Tool.
06A0h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
06AAh		
06ABh		
06ADh		
0830h	Setting file error	• Retry writing the setting with MES Interface Function Configuration Tool.
0831h		• Install a CompactFlash card. • Retry writing the setting with MES Interface Function Configuration Tool.
0832h		• Retry writing the setting with MES Interface Function Configuration Tool.
08A1h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
08A2h		
08B0h		
08B1h		

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Error code	Error name	Action
0A00h	Initialization error	• Replace the CompactFlash card.
0A01h	Start error	
0A02h	Stop error	
0A03h	Reset error	
0A04h	Tag related error	• Check if the network on the programmable controller CPU side is normal.
0A05h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0A06h	Initial SNTP server time enquiry error	• Check if the specified SNTP server is operating normally, or if no error has occurred on the network linked to the specified SNTP server computer.
0A07h	SNTP server time enquiry error	
0A08h to 0A0Dh	Setting read error	• Replace the CompactFlash card.
0A0Fh	CF access stopped error	• Install a CompactFlash card. • Turn the power OFF and ON, or reset the programmable controller CPU.
0A11h	No CF card installed	• Install a CompactFlash card.
0A12h	CF directory operation error	
0A13h	Transferred setting file check error	
0A14h	Setting file check error	
0A80h to 0A83h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0A84h	Illegal action setting error	• Check the actions in [Job settings]. • In Job List of [Remote operation], the job having any illegal action can be checked. (Such a job is not displayed.)
0B00h to 0B0Ah	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0B0Bh	Setting read error	• Replace the CompactFlash card.
0B0Ch		
0B0Dh	DB connection service communication error	• Check the Ethernet connection. • Check if [Server service settings] is correct. • Check if the ODBC setting is correct.
0B0Eh to 0B1Eh	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0B1Fh	Type conversion error	• Change the setting so that type conversion will be available in any case.

Error code	Error name	Action
0B20h	Tag write error	• Check if data can be written to the device specified for the tag component.
0B21h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0B22h	Tag access error	• Check if [Device tag settings] is correct. • Check if the ERR. LED is on or flashing on the MES interface module.
0B23h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0B24h	Tag value read error	• Check if [Device tag settings] is correct.
0B25h to 0B28h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0B29h	Type conversion to tag component error	• Check the tag component type or the substitute value.
0B2Ah to 0B2Dh	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0B2Eh	DB buffer content error	• Replace the CompactFlash card.
0B2Fh		
0B30h	Partial correction of DB buffer content	—
0B31h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0B32h	DB buffer clear error	• Replace the CompactFlash card.
0B33h	DB buffer file error	
0B34h	DB buffer content error	
0B35h to 0B3Ah	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0B3Bh	DB buffer full error	• Check the network status. • Ensure a DB buffering capacity.
0B3Ch	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0B3Dh		

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Error code	Error name	Action
0B3Eh	DB buffering error	• Check the CompactFlash card. • If the CompactFlash card is damaged, replace it.
0B3Fh 0B40h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0B41h	DB buffer read error	• Check the CompactFlash card. • If the CompactFlash card is damaged, replace it.
0B42h	DB buffer clear error	
0B43h	DB buffer read error	
0B44h	DB buffer empty error	• Do not clear the DB buffer during resending of DB-buffered data. • Check the CompactFlash card. • If the CompactFlash card is damaged, replace it.
0B45h	DB buffer empty error	• Check the CompactFlash card. • If the CompactFlash card is damaged, replace it.
0B46h 0B47h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0B48h	Error in conversion from character string to number	• Change the setting so that type conversion will be available in any case.
0B49h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0B4Ah	Error in conversion from character string to number	• Change the setting so that type conversion will be available in any case.
0B4Bh	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0B4Ch	Error in conversion from character string to number	• Change the setting so that type conversion will be available in any case.
0B4Dh	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0B4Eh	Error in conversion from character string to number	• Change the setting so that type conversion will be available in any case.
0B4Fh to 0B52h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0B53h	Overflow or zero divide error	• Check the tag component type or the substitute value. • Change the setting to avoid division by zero.
0B54h	Operation error	• Change the setting so that any invalid operation will not performed.
0B55h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0B56h	Trigger buffer full error	• Reduce the frequency of job startups and their processing loads.
0B57h to 0B63h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0B64h	DB buffering write error	• Change the setting of the DB buffering capacity to ensure a sufficient free space on the CompactFlash card. • Check if the CompactFlash card is damaged or not.
0B80h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0B81h	Communication start error	• Check the Ethernet connection. • Check if [Server service settings] is correct. • Check if the ODBC setting is correct.
0B82h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0B83h	Communication connection error	• Check the Ethernet connection. • Check if [Server service settings] is correct. • Check if the ODBC setting is correct. • Check if the server computer has no problem, referring to the following.
0B84h	Communication connection timeout	
0B85h to 0B87h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0B88h	Message transmission error	• Check the Ethernet connection. • Check if [Server service settings] is correct. • Check if the ODBC setting is correct.
0B89h	Message transmission timeout	
0B8Ah	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.

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Error code	Error name	Action
0B8Bh	Message reception error	• Check the Ethernet connection. • Check if [Server service settings] is correct. • Check if the ODBC setting is correct. • Check if the database has been restarted or not. (When the database is Microsoft® Access 2000/2003) • Check if 128 or more fields are set in Update actions. • Check the sent SQL text and the database contents. • Check if the table and field settings are correct. • Check if the uniqueness constraint of the database (PRIMARY KEY constraint) is violated or not. • Check if multiple MES interface modules are accessing one file at the same time.
0B8Ch	Message reception timeout	• Check the Ethernet connection. • Check if [Server service settings] is correct. • Check if the ODBC setting is correct.
0B8Dh to 0B90h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0B91h	DB transaction status error	• Check the status of the database.
0B92h	DB transaction start status error	
0B93h	DB transaction end status error	
0B94h to 0B9Dh	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0B9Eh	Database connection error	• Check the Ethernet connection. • Check if [Server service settings] is correct. • Check if the ODBC setting is correct.
0B9Fh	Message reception error	
0BA0h	Received message data error	
0BA1h to 0BA5h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0BA6h	Wait for DB access (program execution) completion timed out	• Check the Ethernet connection. • Check if [Server service settings] is correct. • Check if the ODBC setting is correct.
0BA7h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0BA8h	SELECT execution error	• Check the sent SQL text and database contents. • Check if the table and field settings are correct.
0BA9h	COMMIT execution error	
0BAAh	ROLLBACK execution error	
0BABh	DB update error	
0BACh	SQL execution error	• Check the sent SQL text and database contents. • Check if the table and field settings are correct. • Check if the uniqueness constraint of the database (PRIMARY KEY constraint) is violated or not.
0BADh	ODBC connection error during SQL execution	• Check the sent SQL text and database contents. • Check if the table and field settings are correct.
0BAEh to 0BB5h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0BB6h	Execution error (Program execution function)	• Check if the program specified with the program execution function is executable with the specified account.
0BB7h		
0BB8h	Specified program file not exist (Program execution function)	
0BB9h	Specified program file duplicated (Program execution function)	
0BBAh	Execution error (Program execution function)	• Check if the program specified with the program execution function is executable with the specified account.
0BBBh		
0BBCh		
0BBDh	Execution error (Program execution function)	• Check if the program specified with the program execution function is executable with the specified account. • After creating an account used for the program execution function, be sure to log in once at least. • A user with an empty password cannot be specified. Set a password for the specified user.
0BBEh		• Check if the program specified with the program execution function is executable with the specified account.
0BBFh		
0BC0h		
0BC1h		
0BC2h		
0BC3h		
0BC4h		
0BC5h		
0BC6h	DB connection service version error	• Install the latest version of DB Connection Service to a server computer of the connection target.

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Error code	Error name	Action
0C00h to 0C56h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0C80h	CF card check error (event log writing)	• Check if the CompactFlash card is damaged. • Turn the power OFF and ON, or reset the programmable controller CPU.
0C81h	CF card full error (event log writing)	• Check the capacity of the CompactFlash card.
0D00h	Setting file out-of-range access error	• Turn the power OFF and ON, or reset the programmable controller CPU.
0D01h	New setting file creation error	
0D02h	Setting file open error	
0D03h	Setting file seek error	
0D04h	Setting file read error	
0D05h	Setting file write error	
0D06h	Setting file close error	
0D80h to 0D82h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
100Eh		
2000h to 20FFh		
4000h to 4FFFh	Errors detected by the access target CPU	
9000h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
9006h		
9008h	Send buffer full	• Check the CPU(s) on the access route.
9202h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
9204h		
920Ah		
9920h		
9922h		
9923h		
9E20h	Processing code error	• Check the CPU(s) on the access route.
9E81h	Device type error	• Correct the device type entered in [Device tag settings].
9E82h	Device No. error	• Correct the device number entered in [Device tag settings].
9E83h	Number of device points error	• Correct the device number entered in [Device tag settings].
B000h to BFFFh	Errors detected in the CC-Link system	
C000h to CFFFh	Errors detected in the Ethernet interface module	
E000h to EFFFh	Errors detected in the CC-Link IE controller network	
F000h to FEFFh	Errors detected in the MELSECNET/H (10) network system	

Error code	Error name	Action
FFD0h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
FFD1h	Monitor condition dissatisfied error	• Delete the monitor condition by GX Developer.
FFD2h to FFD4h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
FFD5h	ROM operation error	• Change the TC setting value during RAM operation.
FFD6h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
FFD7h		
FFD9h to FFDEh		
FFDFh	Incorrect access target error	• Correct [Access target CPU settings].
FFE0h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
FFE1h		
FFEDh to FFEFh		
FFF0h	Station or Network No. error	• Check the station No. and network No. in [Access target CPU settings].
FFF1h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
FFF2h	Memory cassette error	• Check the memory cassette of the access target CPU.
FFF3h	Write protect error	• Check the block No. of the extension file register (device type). • Check the write-protect DIP switch on the memory cassette of the access target CPU.
FFF4h	Block error	• Check the block No. of the extension file register (device type).
FFF5h	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
FFF8h		
FFFAh		
FFFBh	Size error	• Correct the device number entered in [Device tag settings].
FFFCh	CPU error	• Check the settings of the network module on the access route. • Check the station number setting in [Access target CPU settings].
FFFDh	Device type error	• Correct the device type entered in [Device tag settings].
FFFEh	Device No. error	• Correct the device number entered in [Device tag settings].
FFFFh	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.

10.3.2 Error codes of DB Connection Service

(1) Event log of Windows®

Error code	Error description and cause	Corrective action
1	There is no setting file. Start the service using the default setting.	• Configure the settings again with DB Connection Service Setting Tool.

Error code	Error description and cause	Corrective action
1	Unable to start the service due to insufficient memory.	• Terminate any unnecessary applications. • Add more memory to the computer.
2	Unable to start the service due to insufficient resources.	
3	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
4		
5	Failed to read the setting file. The service is stopped.	• Refer to the actions of error codes 101 to 129. • Actions are displayed with error codes 101 to 129.
6	Failed to initialize the log file. The service is stopped.	• Refer to the actions of error codes 401 to 403, and 501 to 503. • Actions are displayed with error codes 401 to 403, and 501 to 503.
7	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
8		
9	The server port has already been opened. The service is stopped.	• Change the server port No. with DB Connection Service Setting Tool.
10	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
11		
101	The computer ran out of memory while reading the setting file.	• Terminate any unnecessary applications. • Add more memory to the computer.
102	The setting file path is too long.	• Reinstall the DB Connection Service to the directory whose path name is shorter.
103	The setting file name indicates the directory.	• Reinstall the DB Connection Service.
104	The setting file could not be opened.	
105	Description of the setting file is not correct.	• Terminate other applications, and make the setting again with DB Connection Service Setting Tool.
106	Parameter specification of the setting file is not correct.	• Configure the settings again with DB Connection Service Setting Tool.
107	The version of the setting file is not correct.	
108	The server port No. setting is not correct.	
109	The server port No. setting is out of range.	
110	The timeout time setting is not correct.	
111	The timeout time setting is out of range.	
112	There are too many connection-permitted IP address settings.	
113	Description of the connection-permitted IP address setting is not correct.	
114	The mask bit length setting of the connection-permitted IP address is not correct.	

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Error code	Error description and cause	Corrective action
115	The mask bit length setting of the connection-permitted IP address is out of range.	• Configure the settings again with DB Connection Service Setting Tool.
116	The access log setting is not correct.	
117	The setting of the access log file name is not correct.	
118	The access log file name is too long.	
119	The maximum file size setting for the access log is not correct.	
120	The maximum file size setting for the access log is out of range.	
121	The maximum number of access log files is not set correctly.	
122	The maximum number of access log files is out of range.	
123	The SQL failure log setting is not correct.	
124	The setting of the SQL failure log file name is not correct.	
125	The SQL failure log file name is too long.	
126	The maximum file size setting for the SQL failure log is not correct.	
127	The maximum file size setting for the SQL failure log is out of range.	
128	The maximum number of SQL failure log files is not set correctly.	
129	The maximum number of SQL failure log files is out of range.	
401	The computer ran out of memory when initializing the access log file.	• Terminate any unnecessary applications. • Add more memory to the computer.
402	The computer ran out of resources when initializing the access log file.	
403	The full path name of the access log file is too long.	• Shorten the path to the access log file with DB Connection Service Setting Tool.
404	The access log file could not be opened.	• If no directory exists for storing the access log file, create it. • When the attribution of the access log file is set to read-only, cancel the setting. • If read/write is disabled for the access log file, enable it in the security setting. • When the access log file name represents a directory, rename or delete the directory. • When the access log file has been open in another application, terminate the application. • Check the disk device for any fault.
405	The log could not be written to the access log file.	• When the disk space is full, ensure a free disk space. • When the access log file has been open in another application, terminate the application. • Check the disk device for any fault.
406	Failed to delete an old access log file.	• When the attribution of the oldest access log file is set to read-only, cancel the setting. • If read/write is disabled for the oldest access log file, enable it in the security setting. • When the oldest access log file has been open in another application, terminate the application. • Check the disk device for any fault.
407	Failed to rename the access log file.	• When the attribution of the new and old access log files is set to read-only, cancel the setting. • If read/write is disabled for the new and old access log files, enable it in the security setting. • When the new and old access log files have been open in another application, terminate the application. • Check the disk device for any fault.

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Error code	Error description and cause	Corrective action
501	The computer ran out of memory when initializing the SQL failure log file.	• Terminate any unnecessary applications. • Add more memory to the computer.
502	The computer ran out of resources when initializing the SQL failure log file.	
503	The full path name of the SQL failure log file is too long.	• Shorten the path to the SQL failure log file with DB Connection Service Setting Tool.
504	The SQL failure log file could not be opened.	• If no directory exists for storing the SQL failure log file, create it. • When the attribution of the SQL failure log file is set to read-only, cancel the setting. • If read/write is disabled for the SQL failure log file, enable it in the security setting. • When the SQL failure log file name represents a directory, rename or delete the directory. • When the SQL failure log file has been open in another application, terminate the application. • Check the disk device for any fault.
505	The log could not be written to the SQL failure log file.	• When the disk space is full, ensure a free disk space. • When the SQL failure log file has been open in another application, terminate the application. • Check the disk device for any fault.
506	Failed to delete an old SQL failure log file.	• When the attribution of the oldest SQL failure log file is set to read-only, cancel the setting. • If read/write is disabled for the oldest SQL failure log file, enable it in the security setting. • When the oldest SQL failure log file has been open in another application, terminate the application. • Check the disk device for any fault.
507	Failed to rename the SQL failure log file.	• When the attribution of the new and old SQL failure log files is set to read-only, cancel the setting. • If read/write is disabled for the new and old SQL failure log files, enable it in the security setting. • When the new and old SQL failure log files have been open in another application, terminate the application. • Check the disk device for any fault.

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(2) Access log of DB Connection Service

Error code	Error description and cause	Corrective action
0x20100001	(Service Not Start.) Failed to start the service due to insufficient memory.	• Terminate any unnecessary applications. • Add more memory to the computer.
0x20100002	(Service Not Start.) Failed to start the service due to insufficient resources.	
0x20100010	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0x20100011	(Service Not Start.) Failed to start the service due to failure of the server port initialization.	• If firewall software has been installed, set the specified server port operational.
0x20100012	(Service Not Start.) Another application has opened the server port.	• Terminate the application that has opened the server port. • Set another server port No. with DB Connection Service Setting Tool.
0x20100013	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0x20200001	(Not Initialize a service for each client: [IP address]) Failed to initialize a service for each client due to insufficient memory.	• Terminate any unnecessary applications. • Add more memory to the computer.
0x20200002	(Deny network connection request from [IP address]) Rejected the connection request from the non-permitted IP address.	• Using DB Connection Service Setting Tool, add the IP address to those with connection permission.
0x20200003	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0x20300001	(SID [Session ID]: Request Receive Error: [IP address]) Failed to receive data due to insufficient memory.	• Terminate any unnecessary applications. • Add more memory to the computer.
0x20300010	(SID [Session ID]: Request Receive Error: [IP address]) Connection disconnected during request reception.	• Check if it is connected to the network. • Check if the gateway and/or hub is operating. • Check if the power of the module is not turned off.
0x20300011	(SID [Session ID]: Request Receive Error: [IP address]) Timed out during request reception.	
0x20300012	(SID [Session ID]: Request Receive Error: [IP address]) Detected failure of the MES interface module while waiting for or receiving a request.	
0x20300013	(SID [Session ID]: Request Receive Error: [IP address]) Receive I/O error	
0x20300014	(SID [Session ID]: Request Receive Error: [IP address]) Buffer overrun (Request length exceeded)	• Check if the source IP address belongs to the MES interface module.
0x20300015	(SID [Session ID]: Request Receive Error: [IP address]) Received an invalid request.	
0x20310010	(SID [Session ID]: Response Transmit Error: [IP address]) Failed to transmit a response due to disconnection.	• Check if it is connected to the network. • Check if the gateway and/or hub is operating. • Check if the power of the module is not turned off.
0x20310011	(SID [Session ID]: Response Transmit Error: [IP address]) Timed out during response transmission	
0x20310012	(SID [Session ID]: Response Transmit Error: [IP address]) Detected failure of the MES interface module during response transmission.	
0x20310013	(SID [Session ID]: Response Transmit Error: [IP address]) Send I/O error	
0x20400001	(SID [Session ID]: DB Connect: [Data source]: [User]: Failed) Failed in DB connection due to insufficient memory.	• Terminate any unnecessary applications. • Add more memory to the computer.
0x20400002	(SID [Session ID]: DB Connect: [Data source]: [User]: Failed) Failed in DB connection due to insufficient resources.	
0x20400010	(SID [Session ID]: DB Connect: [Data source]: [User]: Failed) Invalid DB connection request	• Check if the source IP address belongs to the MES interface module.
0x20400011	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0x20400012		
0x20400020	(SID [Session ID]: DB Connect: [Data source]: [User]: Failed) Failed to create a DB handle.	• Terminate any unnecessary applications. • Add more memory to the computer.

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Error code	Error description and cause	Corrective action
0x20400021	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0x20400022	(SID [Session ID]: DB Connect: [Data source]: [User]: Failed) Failed in DB connection.	• Set correct data source name, user name, and password in [Server service settings] of MES Interface Function Configuration Tool.
0x20400023	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0x20500011		
0x20500012		
0x20500020 to 0x20500022		
0x20600001	(SID [Session ID]: SQL<...>: Failed) (SID [Session ID]: COMMIT: Failed) (SID [Session ID]: ROLLBACK: Failed) (SID [Session ID]: GetNext: Failed) (SID [Session ID]: Reset: Failed) Failed in SQL execution due to insufficient memory.	• Terminate any unnecessary applications. • Add more memory to the computer.
0x20600002	(SID [Session ID]: SQL<...>: Failed) (SID [Session ID]: COMMIT: Failed) (SID [Session ID]: ROLLBACK: Failed) (SID [Session ID]: GetNext: Failed) (SID [Session ID]: Reset: Failed) Failed in SQL execution due to insufficient resources.	
0x20600010	(SID [Session ID]: SQL<...>: Failed) (SID [Session ID]: COMMIT: Failed) (SID [Session ID]: ROLLBACK: Failed) (SID [Session ID]: GetNext: Failed) (SID [Session ID]: Reset: Failed) Invalid SQL execution request	• Check if the source IP address belongs to the MES interface module.
0x20600011	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0x20600012		
0x20600020	(SID [Session ID]: SQL<...>: Failed) (SID [Session ID]: COMMIT: Failed) (SID [Session ID]: ROLLBACK: Failed) (SID [Session ID]: GetNext: Failed) (SID [Session ID]: Reset: Failed) DB Connection Service does not support the SQL instruction to be executed.	• Check if the source IP address belongs to the MES interface module.
0x20600021	(SID [Session ID]: SQL<...>: Failed) (SID [Session ID]: COMMIT: Failed) (SID [Session ID]: ROLLBACK: Failed) (SID [Session ID]: GetNext: Failed) (SID [Session ID]: Reset: Failed) Failed in preparation before SQL execution.	• Set a correct database type in [Server service settings] of MES Interface Function Configuration Tool. • Select [Job settings] - [Communication action] in MES Interface Function Configuration Tool, and set a correct table name.
0x20600022	(SID [Session ID]: SQL<...>: Failed) (SID [Session ID]: COMMIT: Failed) (SID [Session ID]: ROLLBACK: Failed) (SID [Session ID]: GetNext: Failed) (SID [Session ID]: Reset: Failed) Failed to obtain the number of fields in the record that is to be obtained by the SQL execution.	
0x20600023	(SID [Session ID]: SQL<...>: Failed) (SID [Session ID]: COMMIT: Failed) (SID [Session ID]: ROLLBACK: Failed) (SID [Session ID]: GetNext: Failed) (SID [Session ID]: Reset: Failed) Failed in SQL execution.	• Set a correct database type in [Server service settings] of MES Interface Function Configuration Tool. • Select [Job settings] - [Communication action] in MES Interface Function Configuration Tool, and set a correct table name, field names, and Select/ Update conditions. Also, set a correct data type for the data entered in the fields.
0x20600024	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.

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Error code	Error description and cause	Corrective action
0x20600025	(SID [Session ID]: SQL<...>: Failed) (SID [Session ID]: COMMIT: Failed) (SID [Session ID]: ROLLBACK: Failed) (SID [Session ID]: GetNext: Failed) (SID [Session ID]: Reset: Failed) No record was updated or inserted by the SQL execution.	Select [Job settings] - [Communication action] in MES Interface Function Configuration Tool, and set update conditions correctly. Check if the database has been filled with registered data.
0x20600026 to 0x2060002A	System error	Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0x2060002B	(SID [Session ID]: *** Transmitting Commit Success Response Failed. ***) Failed to transmit the COMMIT success response.	Check if it is connected to the network. Check if the gateway and/or hub is operating. Check if the power of the module is not turned off.
0x20700001	(ProgramExec: [IP address]: <...>: Failed) Failed in remote execution due to insufficient memory.	Terminate any unnecessary applications. Add more memory to the computer.
0x20700002	(ProgramExec: [IP address]: <...>: Failed) Failed in remote execution due to insufficient resources.	
0x20700003	System error	Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0x20700010	(ProgramExec: [IP address]: <...>: Failed) Invalid remote execution request	Check if the source IP address belongs to the MES interface module.
0x20700011	System error	Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0x20700012		

Error code	Error description and cause	Corrective action
0x20700020	(ProgramExec: [IP address]: <...>: Failed) Failed to log on in remote execution	Set correct user name and password in [Server service settings] of MES Interface Function Configuration Tool. Check if the user account is invalid or not by the administrative tool of Windows®. Check if the setting is forcing the user to enter password at next logon by the administrative tool of Windows®. Check if the user password is expired or not by the administrative tool of Windows®.
0x20700021	(ProgramExec: [IP address]: <...>: Failed) Failed to load user profile during remote execution	No user profile for Windows® has been created. With the server service setting set in MES Interface Function Configuration Tool, log on Windows® once, and reexecute.
0x20700022	System error	Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0x20700023	(ProgramExec: [IP address]: <...>: Failed) Failed to generate process during remote execution	• Check if the application to be executed in remote execution exists or not. • Check if the name of the application to be executed in remote execution is a directory. • Make a proper security setting for the application to be executed in remote execution.
0x20800010	(SID [Session ID]: TCPOpen Request Error: [IP address]) Invalid TCPOpen request	• Check if the source IP address belongs to the MES interface module.
0x20800011	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0x20800012		
0x2FE00010		

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(3) SQL failure log of DB Connection Service

Error code	Error description and cause	Corrective action
0x20600001	Failed in SQL execution due to insufficient memory.	• Terminate any unnecessary applications. • Add more memory to the computer.
0x20600002	Failed in SQL execution due to insufficient resources.	
0x20600020	DB Connection Service does not support the SQL instruction to be executed.	• Check if the source IP address belongs to the MES interface module.
0x20600021	Failed in preparation before SQL execution.	• Set a correct database type in [Server service settings] of MES Interface Function Configuration Tool. • Select [Job settings] - [Communication action] in MES Interface Function Configuration Tool, and set a correct table name.
0x20600022	Failed to obtain the number of fields in the record that is to be obtained by the SQL execution.	
0x20600023	Failed in SQL execution.	• Set a correct database type in [Server service settings] of MES Interface Function Configuration Tool. • Select [Job settings] - [Communication action] in MES Interface Function Configuration Tool, and set a correct table name, field names, and Select/ Update conditions. Also, set a correct data type for the data entered in the fields. • Check if the uniqueness constraint of the database (PRIMARY KEY constraint) is violated or not.
0x20600024	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0x20600025	No record was updated or inserted by the SQL execution.	• Select [Job settings] - [Communication action] in MES Interface Function Configuration Tool, and set update conditions correctly. • Check if the database has been filled with registered data.
0x20600026 to 0x20600028	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0x2060002B	(Data source name: *** Transmitting Commit Success Response Failed. ***) Failed to transmit the COMMIT success response.	• Check if it is connected to the network. • Check if the gateway and/ or hub is operating. • Check if the power of the module is not turned off.

10.3.3 Error codes returned in XML response messages

Error code	Error name	Action
0x41170101	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0x41170103	XML message length error	• Check the content of the sent XML message.
0x41171101	XML request message interpretation error	
0x41171111	Duplicated XML request message route	
0x41171201	XML request message route error	
0x41171205	XML request message, attribute error	
0x41171301	XML request message, jobname error	
0x41173101	Job execution error	• Check if the job is already in execution. • Check if the MES interface module is operating. • Check CompactFlash card status (X1) and File access status (X2). • Execute the job after starting the module and sampling tag data.
0x41173103	System error	• Please consult your local Mitsubishi representative, explaining a detailed description of the problem.
0x41173105		

CHAPTER 11 TERMINOLOGY

11.1 DEFINITIONS AND DESCRIPTIONS OF TERMS

The following table shows the definitions and descriptions of the terms used in this manual.

Term	Description
CSV	Abbreviation for Comma Separated Values Text file in which the data are aligned and set off by commas and double quotations
DB buffering	Function temporarily stores SQL text that failed to be sent due to a communication error and resends the text when the communications have been recovered
HTTP	Abbreviation for Hyper Text Transfer Protocol Protocol to exchange XML format messages between the MES interface module and user applications in the XML processing function
Tag for IndustrialSQL Server	Name for data unit in the data base IndustrialSQL Server.
MES	Abbreviation for Manufacturing Execution Systems Systems for controlling and monitoring the plant status in real time to optimize production activities The systems enable to speed up the responses to production plan and status changes that lead to efficient production processes and optimization of production activities.
ODBC	Abbreviation for Open DataBase Connectivity Standard specifications for software to access databases
SNTP	Abbreviation for Simple Network Time Protocol Protocol for synchronizing computer time via a TCP/IP network
SNTP server computer	Computer that provides time information to the MES interface module This computer can be shared with a server computer.
SQL	Abbreviation for Structured Query Language Data manipulation language and used for relational database operations
URL	Abbreviation for Uniform Resource Locator Notation method for indicating the locations of information resources on the Internet
URL encode	Converts character strings into characters can be used in URLs. This designates percent encoding defined by RFC3986.
XML	Abbreviation for eXtensible Markup Language Markup language for describing documentation, data meanings, and structures
Item	One setting group unit included each setting type for editing
Account	Designates the right to use the MES interface module or server computer, or an ID necessary for their use.
Action	Unit for processing defined in a job There are [Communication action] for communicating with a database and [Operation action] for operating tag component values. [Communication action] is a processing unit for sending one SQL text (Select, Update, Insert). [Operation action] is a unit up to 20 dyadic operations can be processed.
System switching	Function for the Redundant CPU to switch between control system and standby system of the redundant system. (Switching from control system to standby system, and vice versa.)
COMMIT	Processing for finalizing the changes to a database

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Term	Description
CompactFlash card (CF card)	Storage card regulated by the [CF+ and CompactFlash Specification] issued by the Compact Flash Association This memory card is necessary for the MES interface module to operate the MES interface function.
Server service	Generic term for the services can be offered by a server computer to which DB Connection Service is installed There are database server service and application server service. The database server service is a service for accessing a database. The application server service is a service for linking with a program.
Server computer	There are database server computers and application server computers. The database server is a computer with a relational database which links information with the MES interface module. The application server is a computer with a program that operates upon request from the MES interface module.
Job	Unit for accessing a database
Update settings	Processing updates the MES interface module settings from MES Interface Function Configuration Tool
Configuration computer	Computer used for configuring various settings required for the MES interface function in the MES interface module This computer can be shared with a server computer.
Time zone	Standard time zone for each region of the world Each nation uses the time difference (±12 hours maximum) from the time at the Greenwich Observatory in the United Kingdom (GMT) as the standard time. The region using the same time difference is called a time zone. The standard time for Japan is 9 hours ahead of the GMT. In some nations, daylight time in which the clock is advanced for one hour is used in summer.
Tag component (Component)	Generic term for a component (Device data) making up a device tag (Tag) This data organizes the communications path, data type, device, etc. for access to each programmable controller CPU device data as a single data unit.
Data source	Connection information necessary for accessing data using ODBC With Windows®, a data source name is assigned to connection information for management. The database can be accessed via ODBC by specifying the data source name in the MES interface function.
Database (DB) or relational database (RDB)	Data management method that follows relational data model logic One data is expressed as a collection of multiple items (Fields) and the data collection is expressed as a table. Data can be easily merged and selected using key data.
Table	Data management format managed with relational databases It is a two-dimensional table format composed of rows and columns.
Device	Variety of memory data in the programmable controller There are devices handled in units of bits and devices handled in units of words.
Device tag (Tag)	Data table that contains a set of information (Component) required to access the device data in the programmable controller CPUs on the network The MES interface module collects device data in units of tags at an interval defined in the tag.
Trigger condition	Startup conditions for job operation

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Term	Description
Trigger buffering	When trigger conditions (conditions for data transmission) of multiple jobs are met in a concentrated manner, their data and trigger times are buffered in the module's internal memory so that actions (data operation/transmission) can be executed later using the buffered data. Even if the frequency of data transmission triggers is high, jobs are executed without missing any trigger.
Data separation	New data and old data are mixedly exists in units of 16 bits (1 word) in 32 bits data (2 words) or larger data due to data reception timing.
Handshake	For highly reliable processing, programmable controller CPU devices are used to manage processing between the programmable controller CPU and MES interface module.
Field	Corresponds to a column in a relational database and indicates a type of data (Record attribute).
Variable (Temporary variable)	Variable that can be used in a single job for temporary storage of values selected from a database and for writing operation values to a database or tag components
Record	Corresponds to a row in a relational database. One row (Record) stores the values of multiple columns (Fields).
Rollback	Processing for canceling changes to a database

Memo

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REVISIONS

The manual number is given on the bottom left of the back cover.

Print date	Manual number	Revision
Apr., 2008		First edition

Mitsubishi Programmable Controllers
MES Interface Module Quick Start Guide

Precautions for Choosing the Products

This catalog explains the typical features and functions of the Q series Programmable Controllers and does not provide restrictions and other information on usage and module combinations. When choosing the products, always check the detailed specifications, restrictions, etc. of the products in the Q series data book. When using the products, always read the user's manuals of the products.
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