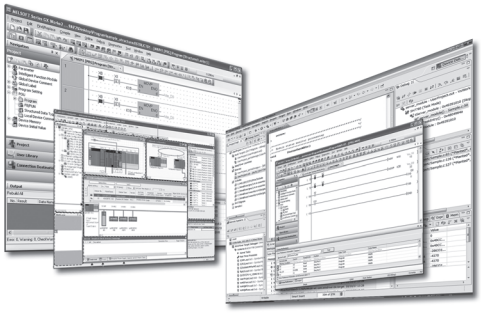
MITSUBISHI ELECTRIC

MELSOFT

Engineering Software

PX Developer Version 1 Operating Manual (JoyWatcherSuite Interactio)

-SW1D5C-FBDQ-E
-SW1D5C-FBDQMON-E



● SAFETY PRECAUTIONS ●

(Always read these instructions before using this product.)

Before using this product, thoroughly read this manual and the relevant manuals introduced in this manual and pay careful attention to safety and handle the products properly.
The precautions given in this manual are concerned with this product. For the safety precautions of the programmable controller system, refer to the User's Manual for the CPU module.
In this manual, the safety precautions are ranked as "⚠WARNING" and "⚠CAUTION".

⚠ WARNING	Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury.
⚠ CAUTION	Indicates that incorrect handling may cause hazardous conditions, resulting in minor or moderate injury or property damage.

Note that the ⚠CAUTION level may lead to serious consequences according to the circumstances. Always follow the precautions of both levels because they are important for personal safety.

Please save this manual to make it accessible when required and always forward it to the end user.

[Startup/Maintenance Precautions]

⚠ CAUTION

- The online operations have to be executed after the manual has been carefully read and the safety has been ensured.
  Failure to do so may cause a miss operation which results in machine damage or an accident.

● CONDITIONS OF USE FOR THE PRODUCT ●

(1) Mitsubishi programmable controller ("the PRODUCT") shall be used in conditions;
i) where any problem, fault or failure occurring in the PRODUCT, if any, shall not lead to any major or serious accident; and
ii) where the backup and fail-safe function are systematically or automatically provided outside of the PRODUCT for the case of any problem, fault or failure occurring in the PRODUCT.

(2) The PRODUCT has been designed and manufactured for the purpose of being used in general industries.
MITSUBISHI SHALL HAVE NO RESPONSIBILITY OR LIABILITY (INCLUDING, BUT NOT LIMITED TO ANY AND ALL RESPONSIBILITY OR LIABILITY BASED ON CONTRACT, WARRANTY, TORT, PRODUCT LIABILITY) FOR ANY INJURY OR DEATH TO PERSONS OR LOSS OR DAMAGE TO PROPERTY CAUSED BY the PRODUCT THAT ARE OPERATED OR USED IN APPLICATION NOT INTENDED OR EXCLUDED BY INSTRUCTIONS, PRECAUTIONS, OR WARNING CONTAINED IN MITSUBISHI'S USER, INSTRUCTION AND/OR SAFETY MANUALS, TECHNICAL BULLETINS AND GUIDELINES FOR the PRODUCT.
("Prohibited Application")
Prohibited Applications include, but not limited to, the use of the PRODUCT in;
- Nuclear Power Plants and any other power plants operated by Power companies, and/or any other cases in which the public could be affected if any problem or fault occurs in the PRODUCT.
- Railway companies or Public service purposes, and/or any other cases in which establishment of a special quality assurance system is required by the Purchaser or End User.
- Aircraft or Aerospace, Medical applications, Train equipment, transport equipment such as Elevator and Escalator, Incineration and Fuel devices, Vehicles, Manned transportation, Equipment for Recreation and Amusement, and Safety devices, handling of Nuclear or Hazardous Materials or Chemicals, Mining and Drilling, and/or other applications where there is a significant risk of injury to the public or property.

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REVISIONS

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

Print Date	* Manual Number	Revision
Dec., 2010	SH(NA)-080976ENG-A	First edition
Oct., 2011	SH(NA)-080976ENG-B	Addition Appendix 5 Correction HOW TO USE THIS MANUAL, Section 1.1, Section 3.5, Section 3.5.4, Chapter 4, Appendix 2, Appendix 3.1, Appendix 3.2
Feb., 2014	SH(NA)-080976ENG-C	Addition Appendix 6 Correction GENERIC TERMS, ABBREVIATIONS, AND TERMS, Section 2.3, Section 3.6.1, Appendix 2
Jul., 2015	SH(NA)-080976ENG-D	Correction Section 3.3.1

Japanese Manual Version SH-080922-I

INTRODUCTION

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

CONTENTS

MANUALS

The following manuals are also related to this product.
Refer to the following table for ordering a manual.

Related manuals

Manual name	Manual number (model code)
PX Developer Operating Manual (Programming Tool) Explains FBD language programming, compilation, online operations, and debug methods with PX Developer. (Sold separately.)	SH-080369E (13JU38)
PX Developer Operating Manual (Monitor Tool) Explains the operation methods of the monitor tool and methods for monitoring and controlling DDC processing with tag FB. (Sold separately.)	SH-080370E (13JU39)
PX Developer Programming Manual Explains details of programming with PX Developer, lists of FB parts, and the PID instructions. (Sold separately.)	SH-080371E (13JW00)

CAUTION

- Please note that we do not guarantee commercially available software compatible with Microsoft® Windows® Operating System introduced in this manual.
- The software copyright of this product belongs to Mitsubishi Electric Corporation.
- No contents in this manual can be reproduced or duplicated in any form or by any means without permission.
- Although we make utmost efforts, this manual may not completely follow the revisions of the software and hardware.
- In principle, this software should be purchased by one set per personal computer or by license purchase.
- This product (including this manual) can only be used under the software license agreement.
- Please note that we are not responsible for any influence resulting from operating this product (including this manual).
- The contents of this manual are subject to change without notice.

PURPOSE

Describes the purpose of operations for each chapter or section.

Setting on JoyWatcherSuite

Describes operating procedures.

3.3 Operation to Communicate using PX Developer Process Control Tag Names in JoyWatcherSuite

PURPOSE

Register tags using process control tag names defined in PX Developer and read/write the process control tag data of the monitor tool in JoyWatcherSuite.

Setting on JoyWatcherSuite

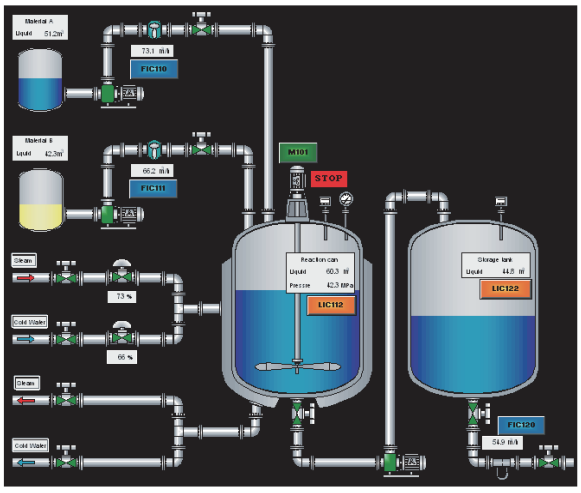
Procedure 1) Register process control tags to be used for MELSEC PX Tag Select. ☞ Section 3.3.1)

Procedure 2) Set the settings to communication with PX Developer by JWDesign. ☞ Section 3.3.2)

Procedure 3) Set process control tags to be monitored on JWEdit. ☞ Section 3.3.3)

Execution on JoyWatcherSuite

The process control tag data can be read/written by executing JWPanel after starting the monitor tool.



< Example of JoyWatcherSuite operating environment screen >

Execution on JoyWatcherSuite

Describes functions to be executed.

Reference location

☞ leads to the reference location.

A-7

There are also the following types of explanations.

BASIC OPERATION

Explains operation methods.

DISPLAY/SETTING SCREEN

Screen to display/set items.

DISPLAY/SETTING DATA

Explains items in DISPLAY/SETTING SCREEN.

POINT

Informs items to be noted and useful functions relevant to the contents in the chapter or section.

The following table explains symbols in this manual and their description.

Symbol	Description
[ ]	Expresses an item in a window or dialog box, or a menu on the menu bar. [ ] → [ ] expresses the drop-down menu. Example: [File] → [Save As]
( )	Expresses a corresponding button. Example: " Select " button ()
" "	Expresses a command button. Example: "OK" button
<< >>	Expresses dialog box tab. Example: <<MELSEC PX ALARM>> tab

MANUAL ORGANIZATION

This manual consists of four chapters and Appendix.
This manual is organized assuming that the interaction function of the PX Developer monitor tool and JoyWatcherSuite are utilized in the following procedure.

< Procedure for utilizing the interaction function with JoyWatcherSuite >

Operating procedure 1: Set PX Developer projects to be monitored on the PX Developer monitor tool.	Reference
• Set monitor target projects.	Section 3.2 • PX Developer Operating Manual (Monitor Tool)

⇩

Operating procedure 2: Using the tag name reference function of JoyWatcherSuite, assign process control tags of PX Developer to the tags.	Reference
• Register process control tags to be used.	Section 3.3
• Set the settings to communicate with PX Developer.	
• Set process control tags to be monitored.	

⇩

Operating procedure 3: Paste faceplate control of PX Developer monitor tool on JWEdit of JoyWatcherSuite.	Reference
• Paste/set faceplate control.	Section 3.4
• Set showing faceplate from object.	

⇩

Operating procedure 4: Set to display alarms and events of the PX Developer monitor tool on Alarm Monitor of JoyWatcherSuite.	Reference
• Set the database settings.	Section 3.5
• Set common memory devices.	
• Set the security manager.	
• Set the alarm monitor.	

⇩

Operating procedure 5: Set to perform interactive start/stop of the PX Developer monitor tool on JoyWatcherSuite.	Reference
• Set the interactive start/stop setting.	Section 3.6

⇩

Operating procedure 6: Execute JWPanel of JoyWatcherSuite.

GENERIC TERMS, ABBREVIATIONS, AND TERMS

The following table shows the generic terms, abbreviations, and terms in this manual.

(1) Generic terms and abbreviations

Generic term/abbreviation	Description
PX Developer	Generic term for PX Developer Version 1 (SW1D5C-FBDQ-E) and PX Developer Monitor Tool (SW1DNC-FBDQMON-E) For PX Developer, Programming Tool and Monitor Tool are installed. For PX Developer Monitor Tool, only Monitor Tool is installed.
Programming tool	Abbreviation for PX Developer programming tool
Monitor tool	Abbreviation for PX Developer monitor tool
OPS	Abbreviation for Operator Station
Server	Abbreviation for a monitor tool which starts up as Server in the server/client monitoring system interacting with multiple OPSs
Client	Abbreviation for a monitor tool which starts up as Client in the server/client monitoring system interacting with multiple OPSs
JoyWatcherSuite	Abbreviation for JoyWatcherSuite Version 5.0 or later
Windows® 8	Generic term for Microsoft® Windows® 8 Operating System, Microsoft® Windows® 8 Pro Operating System, and Microsoft® Windows® 8 Enterprise Operating System
Windows® 7	Generic term for Microsoft® Windows® 7 Starter Operating System, Microsoft® Windows® 7 Home Premium Operating System, Microsoft® Windows® 7 Professional Operating System, Microsoft® Windows® 7 Ultimate Operating System, and Microsoft® Windows® 7 Enterprise Operating System
Windows Vista®	Generic term for Microsoft® Windows Vista® Home Basic Operating System, Microsoft® Windows Vista® Home Premium Operating System, Microsoft® Windows Vista® Business Operating System, Microsoft® Windows Vista® Ultimate Operating System, and Microsoft® Windows Vista® Enterprise Operating System
Personal computer	Generic term for IBM-PC/AT-compatible personal computer

(2) Terms

Term	Description
JWDesign	Development environment of JoyWatcherSuite
JWEdit	Development environment of JoyWatcherSuite
Alarm Monitor	Development environment of JoyWatcherSuite
MELSEC PX Tag Select	Development environment of JoyWatcherSuite
Security Manager	Development/Operating environment of JoyWatcherSuite
JWPanel	Operating environment of JoyWatcherSuite
JWLauncher	Operating environment of JoyWatcherSuite
DDE	Abbreviation for Dynamic Data Exchange Windows® standard communication protocol between applications.
DDC	Abbreviation for Direct Digital Control A control of controller functions with a digital device.
FB	Abbreviation for Function Block A block with a specific function used in a program.
Process control tag	Tags for identification attached to process control equipment. They are JIS-defined identification symbols attached to DDC processings.

Term	Description
Process control tag data	Organized data (process condition data, process status data) attached to DDC processing which is indicated by process control tag. Accessing this process control tag data allows monitoring and condition setting of a corresponding DDC processing.
Process control tag data item	Each data item that makes up process control tag data.
Tag FB	A function block works as a controller or an indicator containing tag data.
Faceplate	Gauge window on which an indicator such as a controller is displayed in image format. Values assigned to tag data are manipulated.
SV	Setting value
PV	Process variable
MV	Manipulated variable
Assignment information database	"*.mdb" file which is created when compilation is executed in the programming tool. This file stores assignment information of variables for storing data such as tag data and device information of the CPU module.

1 OVERVIEW

1.1 Overview

In addition to the basic monitoring function of the monitor tool, outstanding and easy-to-use JoyWatcherSuite development/monitoring environment can also be available by using the interaction function of the PX Developer monitor tool and JoyWatcherSuite (SCADA software manufactured by JT Engineering inc.).
This function supports the following four interaction functions.

(1) Incorporating faceplate control
(2) Communication function using process control tag names
(3) Reference function for PX Developer process control tag names
(4) Alarm integration function

The following are the development environment and operating environment of JoyWatcherSuite described in this manual.
Development environment: JWDesign, JWEdit, Alarm Monitor, MELSEC PX Tag Select, Security Manager, JWUserDef
Operating environment: JWPanel, JWLauncher, Security Manager

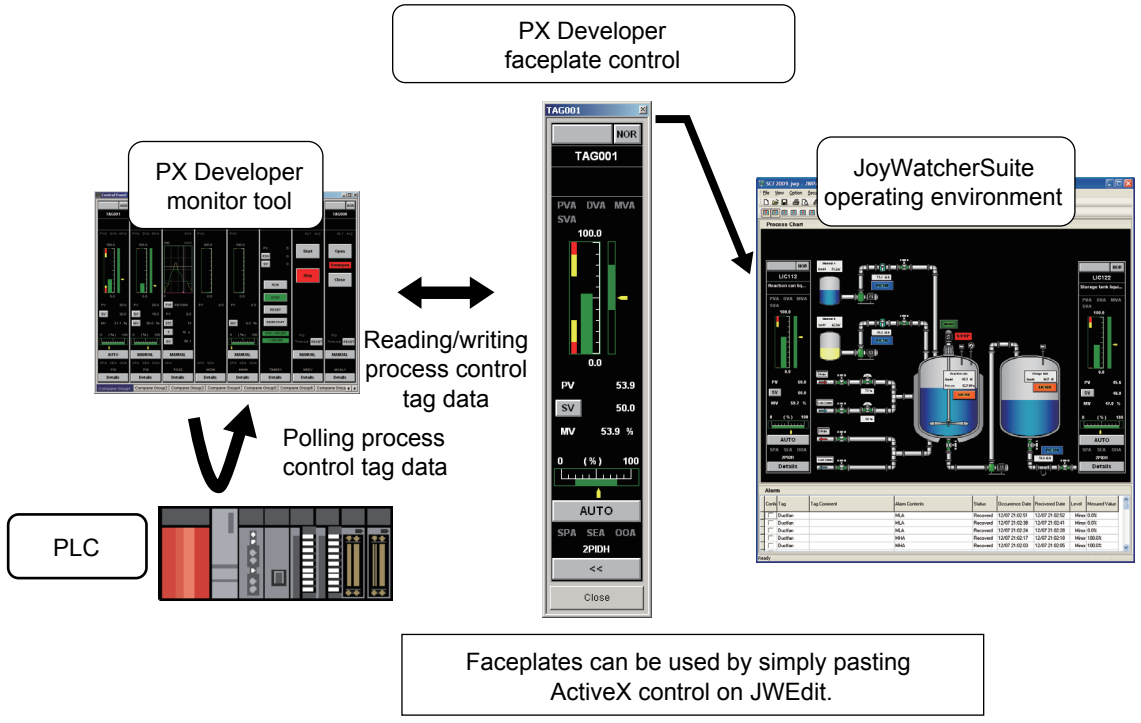
1.2 Features

This section explains the main features of the four interaction functions.

(1) Faceplate control reduces development time of monitor screens

By simply pasting faceplate control of PX Developer (ActiveX control) on JWEdit, faceplates can be easily used on monitor screens of JoyWatcherSuite.
This reduces development time of monitor screens and tuning screens for process control tag data on JoyWatcherSuite.

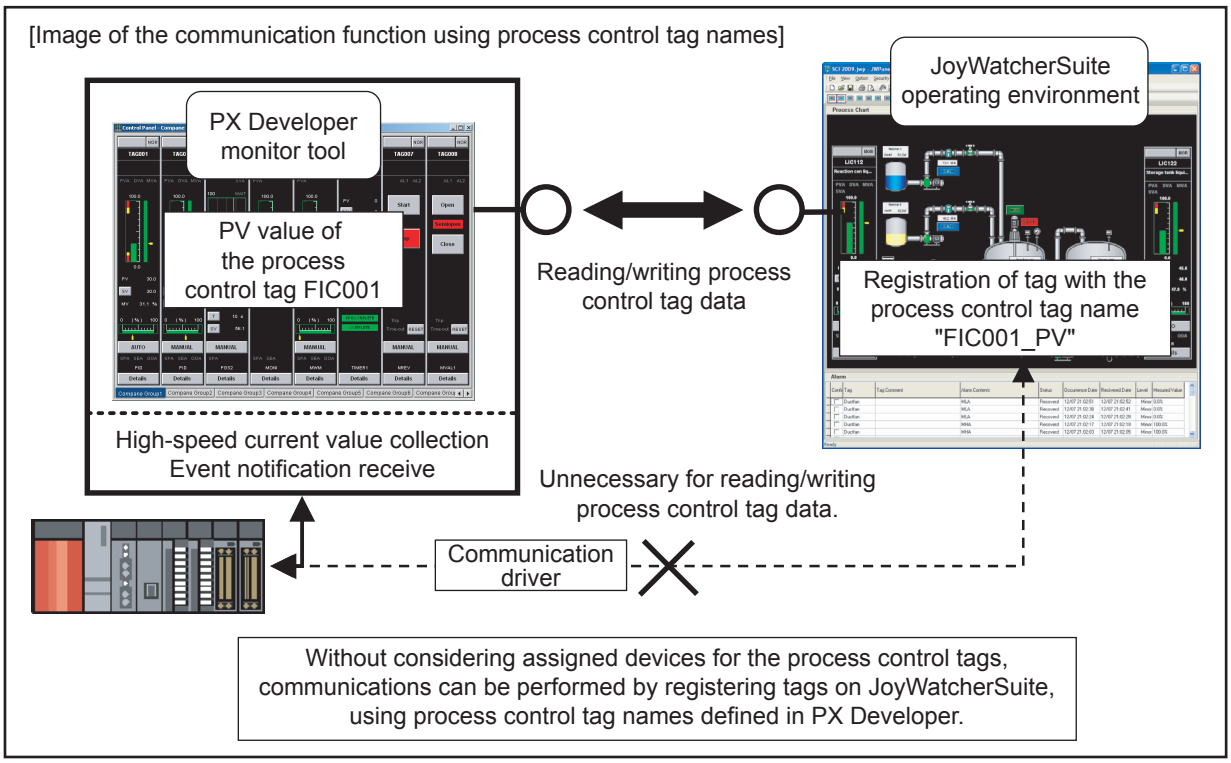
[Image of incorporating faceplate control]



1-2

(2) Without considering assigned devices, communications can be performed using process control tag names in JoyWatcherSuite

When registering tags in JoyWatcherSuite, PX Developer process control tag names can be used as tag names in JoyWatcherSuite, and process control tag data in the monitor tool can be read from/written to JoyWatcherSuite.
This eliminates the need for managing assigned devices and communicating through a communication driver to read/write process control tag data.
Furthermore, high-speed response by the event notification receive function and the high-speed current value collection function of the monitor tool can be utilized on the monitor screen of JoyWatcherSuite.

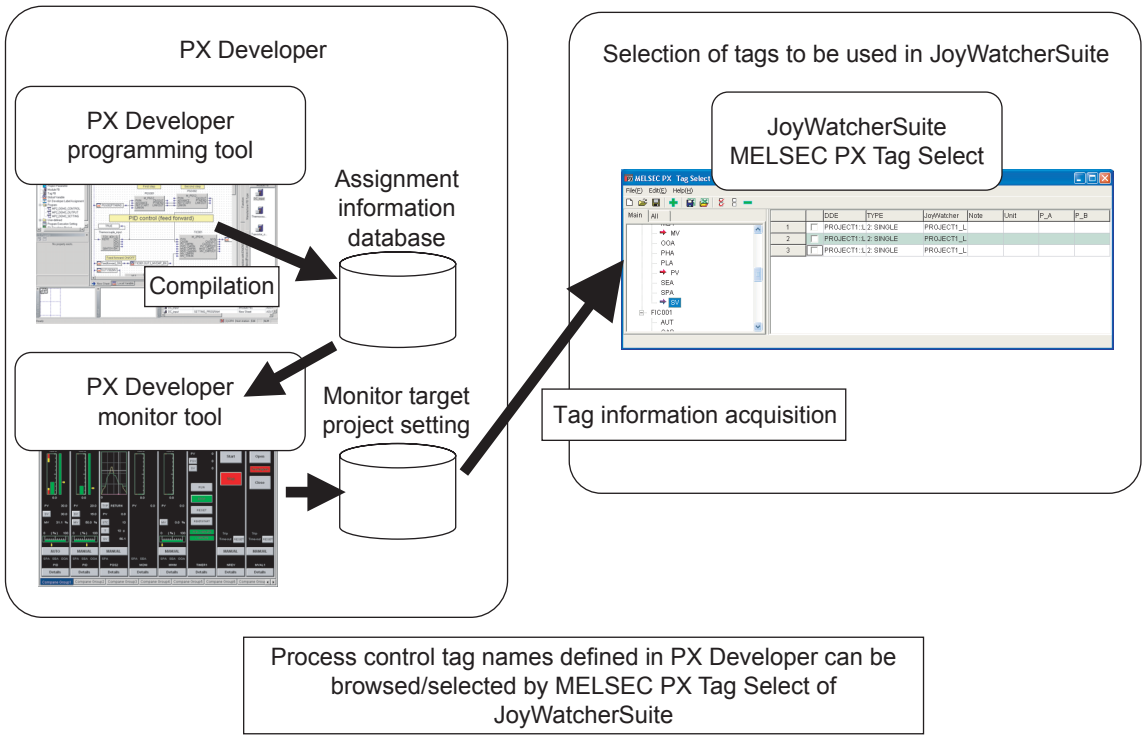


(3) Process control tag names can be selected easily from JoyWatcherSuite

When using the communication function with the aforementioned process control tag name, PX Developer process control tag names can be easily browsed/selected*1 by MELSEC PX Tag Select of JoyWatcherSuite using the tag name reference function.
This function reduces key inputs and typing errors, and improves work efficiency.

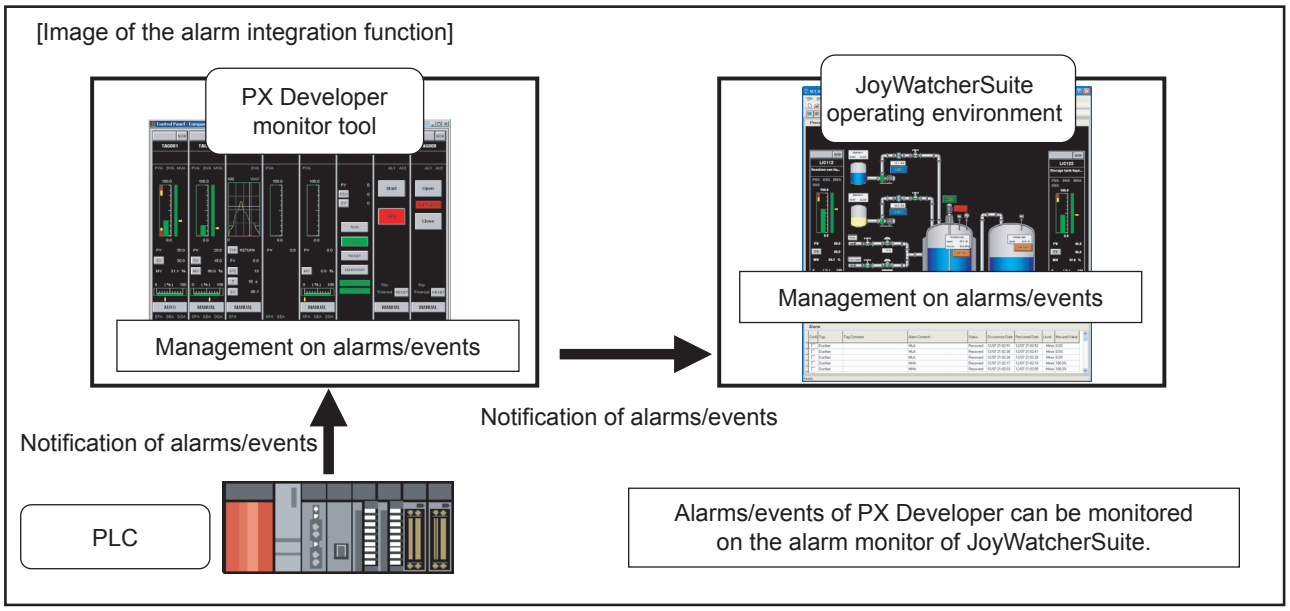
*1: Process control tags that can be browsed/selected are tags of the project registered in the monitor target project setting in the PX Developer monitor tool.

[Image of the tag name reference function]



(4) Alarms/events of the PX Developer monitor tool can be monitored on JoyWatcherSuite

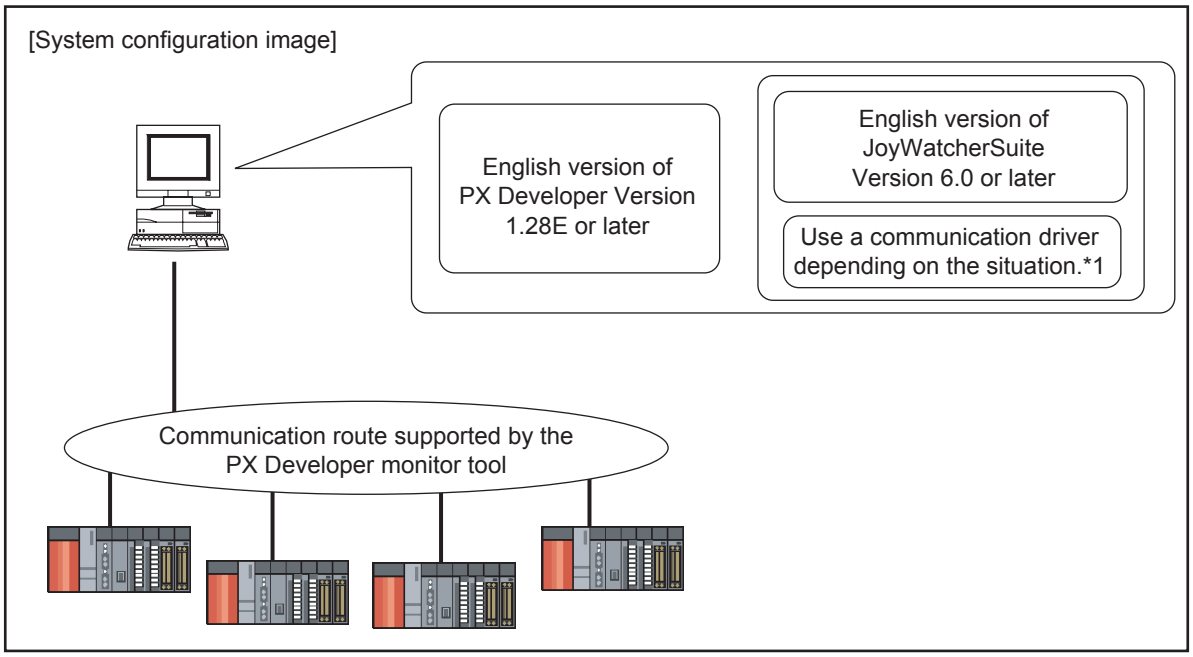
By using the alarm integration function, alarms and events of the monitor tool can be displayed on Alarm Monitor of JoyWatcherSuite. This function improves monitoring efficiency.



2 SYSTEM CONFIGURATION

2.1 System Configuration

This section explains system configuration when using the interaction function of PX Developer and JoyWatcherSuite.
For communication routes supported by PX Developer, refer to "SYSTEM CONFIGURATION" in "PX Developer Operating Manual (Monitor Tool)".
To use the interaction function, install PX Developer and JoyWatcherSuite to the same personal computer. If they are installed to different personal computers, the interaction function cannot be used.



*1: For reading/writing device data other than process control tags in JoyWatcherSuite, a communication driver is required.

2

Point

The following tables show the validation/invalidation of the interaction function according to the combination of monitor tool and JoyWatcherSuite.

Monitor tool[*1]	Not installed	
JoyWatcherSuite	Server	Client
Reference function for PX Developer process control tag name	×	
Faceplate control display	×	×
Communication function using process control tag names	×	○[*2]
Alarm integration function	×	○[*2]

(○: Validated, ×: Invalidated)

Monitor tool[*1]	Installed and not started	
	Server Standalone	Client
JoyWatcherSuite	Server	Client
Reference function for PX Developer process control tag names	○	
Faceplate control display	×	×
Communication function using process control tag names	×	○[*2]
Alarm integration function	×	○[*2]

(○: Validated, ×: Invalidated)

Monitor tool[*1]	In operation	
	Server Standalone	Client
JoyWatcherSuite	Server	Client
Reference function for PX Developer process control tag names	○	
Faceplate control display	○	○
Communication function using process control tag names	○	○[*2]
Alarm integration function	○	○[*2]

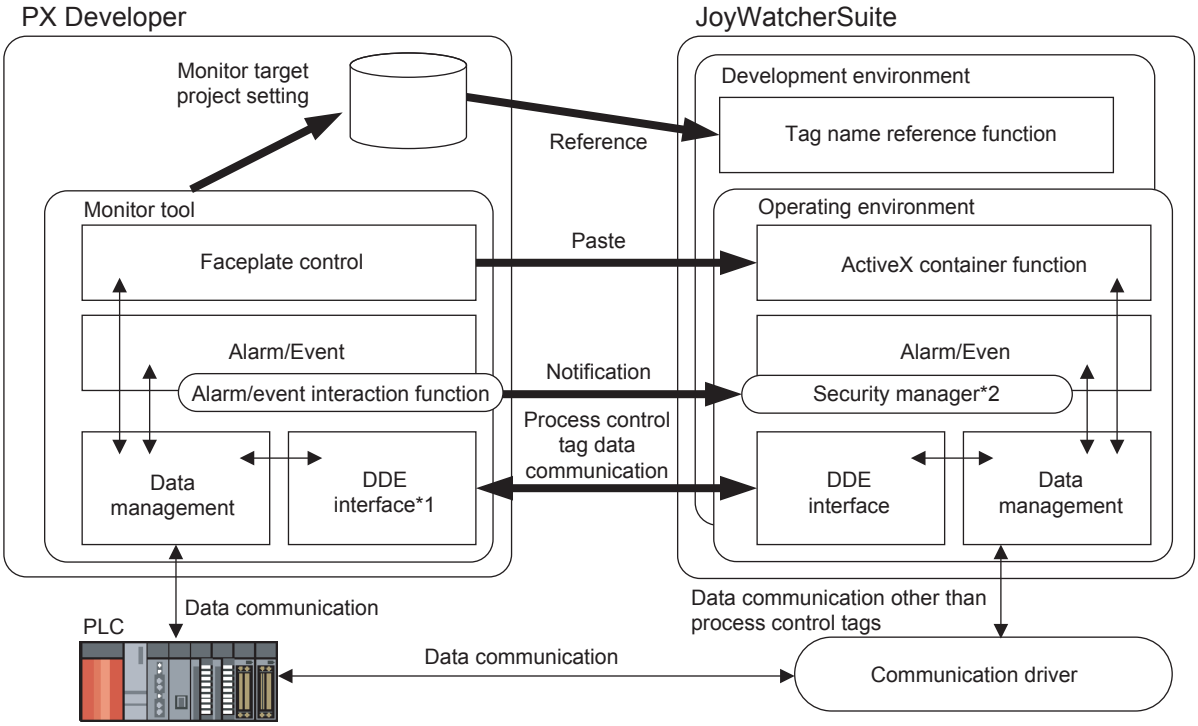
(○: Validated, ×: Invalidated)

*1: Install a monitor tool server or standalone to a JoyWatcherSuite server, and install a monitor tool client to a JoyWatcherSuite client.

*2: Validated only when the monitor tool is in operation on the JoyWatcherSuite server personal computer.

2.2 Software Configuration

This section explains software configuration when using the interaction function of PX Developer and JoyWatcherSuite.



*1: JoyWatcherSuite reads/writes process control tag data in the PX Developer monitor tool through DDE interface.

*2: The security manager is an application that stores information on alarms and events to the alarm database of JoyWatcherSuite.

2.3 Operating Environment

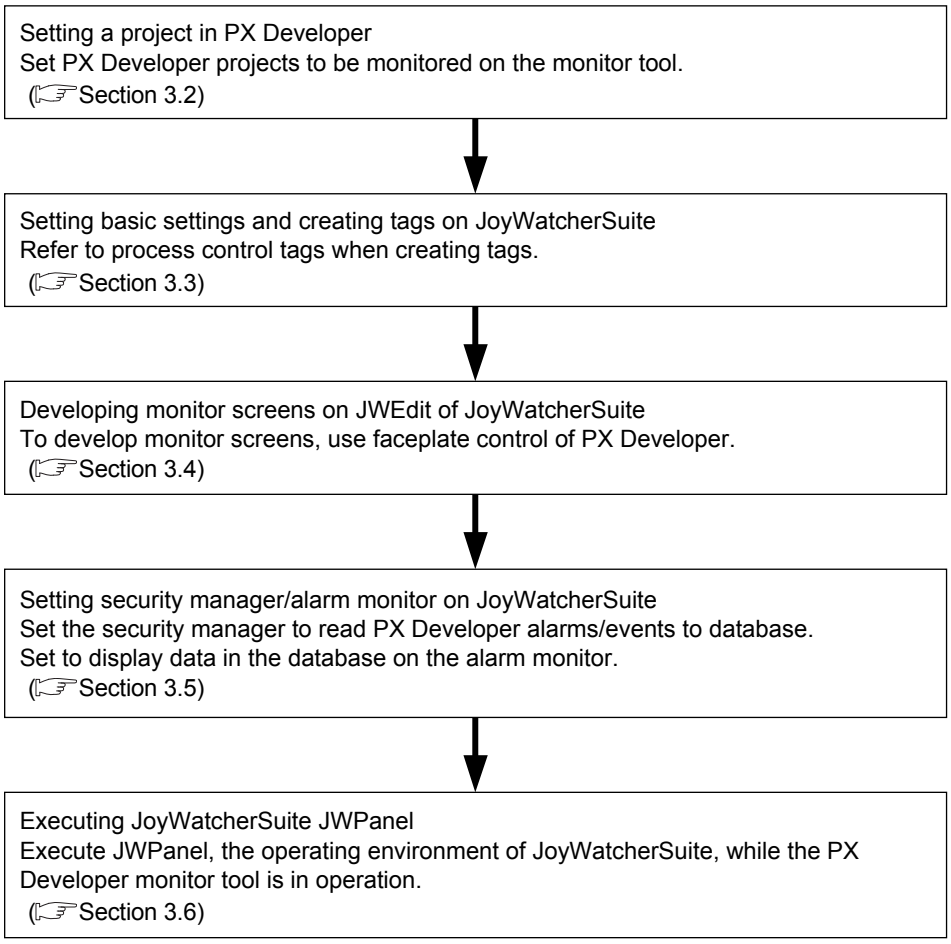
PX Developer Version 1.28E or later and JoyWatcherSuite Version 6.0 or later are required for interacting themselves.
For the operating environment of PX Developer, refer to "Operating Environment" in "PX Developer Operating Manual (Monitor Tool)".
For the operating environment of JoyWatcherSuite, refer to "Start Guide" of JoyWatcherSuite.
The following are the applicable system software (operating system) to operate this interaction function.

- Microsoft® Windows® 2000 Operating system
- Microsoft® Windows® XP Home Edition Operating system
- Microsoft® Windows® XP Professional Operating system
- Windows Vista®
- Windows® 7
- Windows® 8

3 BASIC OPERATION

3.1 Operating Procedures for Monitoring on JoyWatcherSuite

This section explains procedures for monitoring on JoyWatcherSuite.



3.2 Operation to Set PX Developer Projects to be Monitored on Monitor Tool

PURPOSE

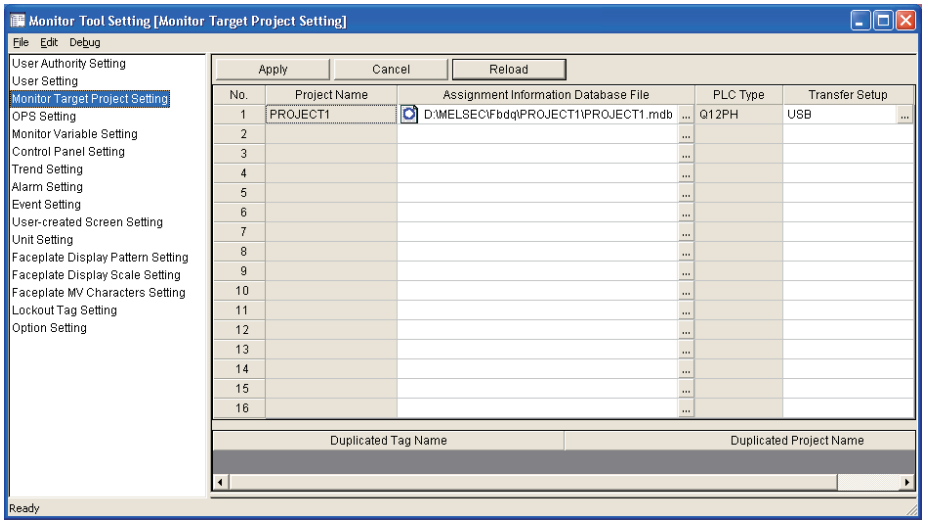
Register PX Developer projects containing defined process control tags to be monitored to the monitor target project setting. This operation is to validate accesses from JoyWatcherSuite to process control tags to be monitored in the JoyWatcherSuite interaction function.

Setting on PX Developer monitor

Procedure 1) Set monitor target projects on the monitor tool. (☞Section 3.2.1)

3.2.1 Setting monitor target projects

BASIC OPERATION



On the monitor tool, register the PX Developer project containing defined process control tags to be monitored to the monitor target project setting.
For registering projects, refer to "Monitor Target Project Setting" in "PX Developer Operating Manual (Monitor Tool)".

POINT

To validate the set data, close the monitor tool setting screen or click [File] → [Save the setting data] from the menu.

3.3 Operation to Communicate using PX Developer Process Control Tag Names in JoyWatcherSuite

PURPOSE

Register tags using process control tag names defined in PX Developer and read/write the process control tag data of the monitor tool in JoyWatcherSuite.

Setting on JoyWatcherSuite

Procedure 1) Register process control tags to be used for MELSEC PX Tag Select. (☞Section 3.3.1)

↓

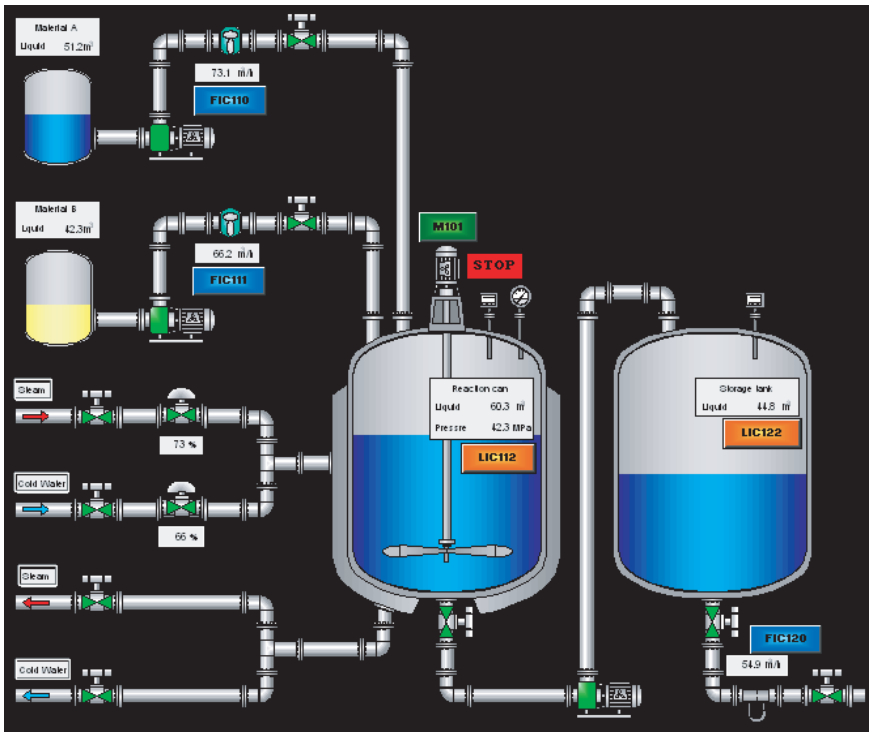
Procedure 2) Set the settings to communication with PX Developer by JWDesign. (☞Section 3.3.2)

↓

Procedure 3) Set process control tags to be monitored on JWEdit. (☞Section 3.3.3)

Execution on JoyWatcherSuite

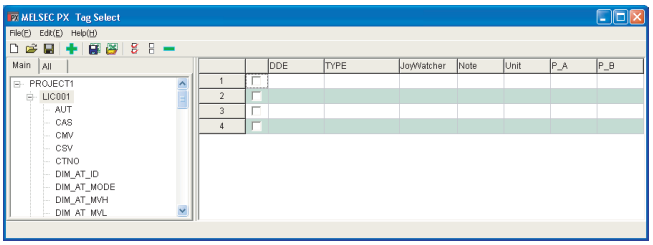
The process control tag data can be read/written by executing JWPanel after starting the monitor tool.



< Example of JoyWatcherSuite operating environment screen >

3.3.1 Registering process control tags

BASIC OPERATION



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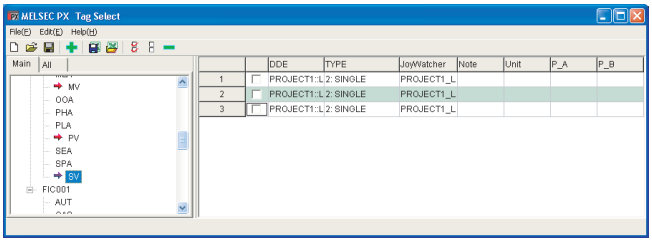

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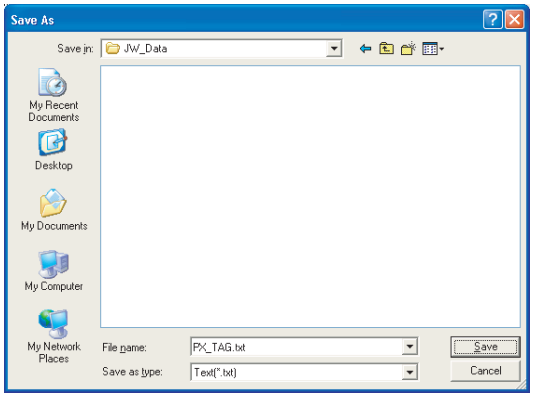


1. Click [All Programs] → [JoyWatcher] → [Basic Setting] → [Connection Tools] → [MELSEC PX] from the start menu to start MELSEC PX Tag Select.
2. The MELSEC PX Tag Select screen is displayed. A list of process control tags of PX Developer registered on the monitor tool is displayed in the tree.
   Only current value collection targets and process control tag items for event notification are displayed in the <<Main>> tab.
   All process control tag items are displayed in the <<All>> tab.
3. Select process control tag items to be used in JoyWatcherSuite from the tree, and click the "Add Row" ( ) button.
4. The selected process control tag items are displayed in the table at the right.
   Change the tag name, comment or unit to be used in JoyWatcherSuite as necessary.

5. Click [File] → [Save As] from the menu.
6. The Save As dialog box is displayed.
   Input a file name and click the "Save" button.
   (The file extension is ".txt".)
   The files saved at this point (defined files) are required for server designing and execution of JoyWatcherSuite.

POINT

- Since the maximum number of characters for a JoyWatcherSuite tag name is 64, a long process control tag name set in PX Developer is indicated in 46 characters and a serial number (5 digits).
- Characters that cannot be used for process tag name in JoyWatcherSuite are replaced with the character applicable to JoyWatcherSuite. ("::", ".", "[", "]", "'" are replaced with "_".)
- The MELSEC PX tag selection function refers tag information from setting data of the monitor tool. PX Developer tags to be referred are tag FBs (process control tags) of all supported projects registered in the monitor target project setting of the monitor tool.
- Even when the information of PX Developer project tag FB is changed and compiled again after starting the MELSEC PX tag selection function, it is not reflected to the process control tag list on MELSEC PX tag selection. Read the project with PX Developer monitor tool again, save the set data, and restart the MELSEC PX tag selection function.
- If the tag list is not displayed, the following are the possible causes.
  (1) The setting data file in the monitor tool is one of the old versions.
  (2) A setting not supported by the monitor tool of the versions concerned is included in the setting data file of the monitor tool.

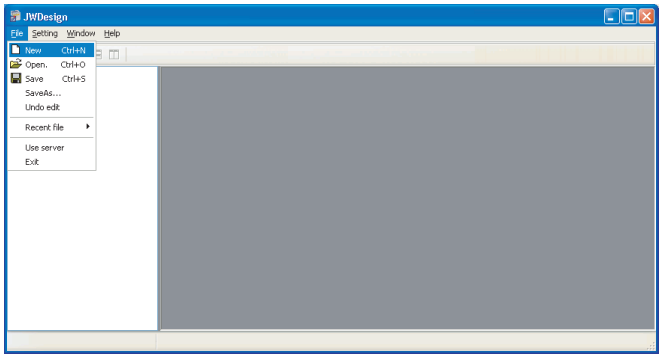
  As each countermeasure, perform the followings:
  (1) Refer to "Version Compatibility" in "PX Developer Operating Manual (Monitor Tool)" and convert the setting data file.
  (2) Refer to "Version Compatibility" in "PX Developer Operating Manual (Monitor Tool)" and check the supportability of the setting data file.

*1: For checking whether the project is supported, refer to "Monitor Target Project Setting" in "PX Developer Operating Manual (Monitor Tool)".

3.3.2 Server design

BASIC OPERATION

1. Click [All Programs] → [JoyWatcher] → [Basic Setting] → [JWDesign] from the start menu to start JWDesign.



2. The JWDesign screen is displayed.
Click [File] → [New] from the menu.

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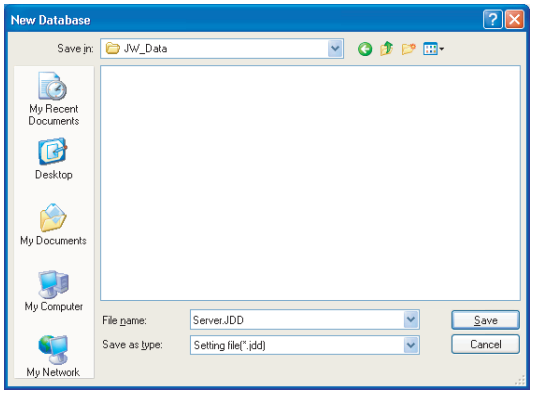
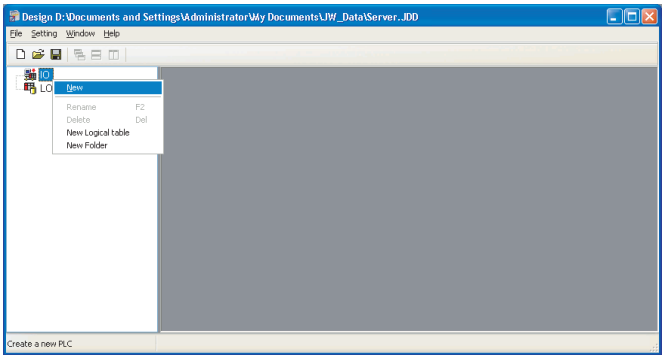


3. The New Database dialog box is displayed.
Input a file name and click the "Save" button.

↓



4. A new database is created.
Right-click [IO] in the tree, and click [New] from the menu.

↓

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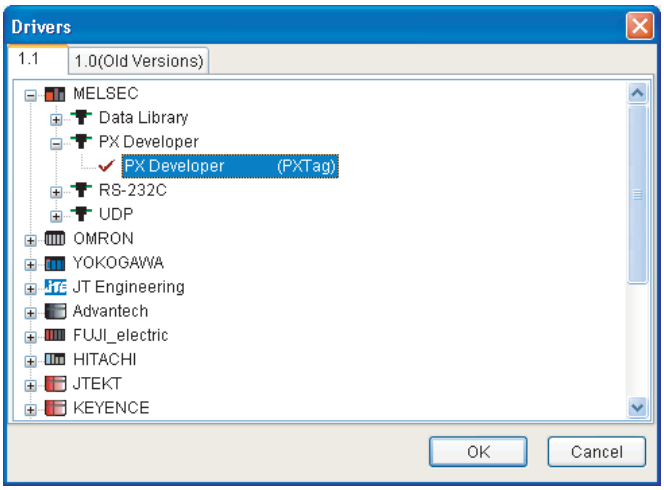
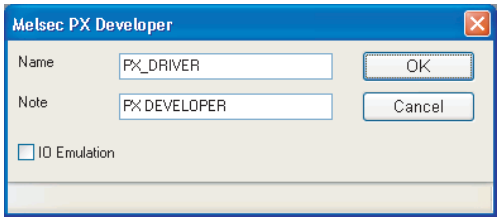


5. The Drivers dialog box is displayed.
   Select [MELSEC] → [PX Developer] → [PX Developer], and click the "OK" button.

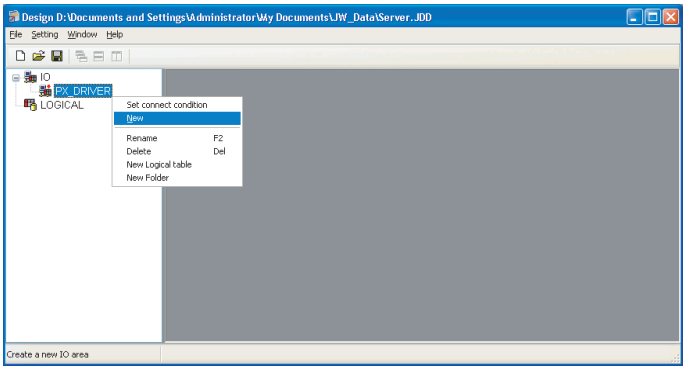
↓



6. The driver definition dialog box is displayed.
   - Input a name and note.
   - When using the virtual PLC mode, check the "IO Emulation" check box.

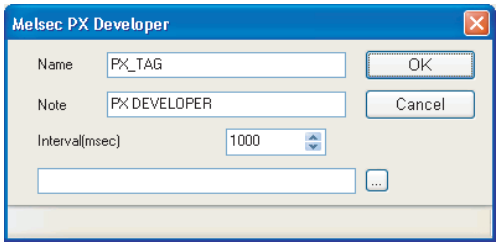
   Click the "OK" button.

↓



7. A driver is created under [IO] in the tree.
   Right-click the created driver ("PX_DRIVER" for this example), and click "New" from the menu.

↓



8. The device area setting dialog box is displayed.
   - Input a name and note.
   - Input a sampling interval.
   - Click the 'file selection' button (...).

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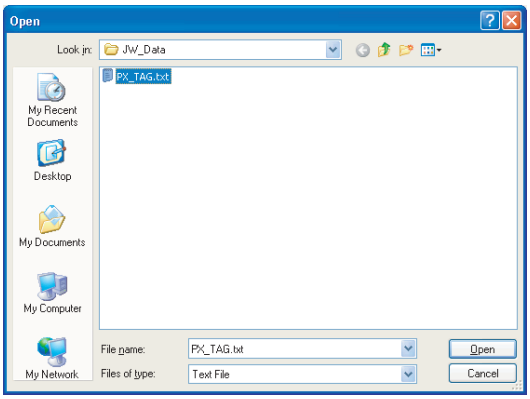
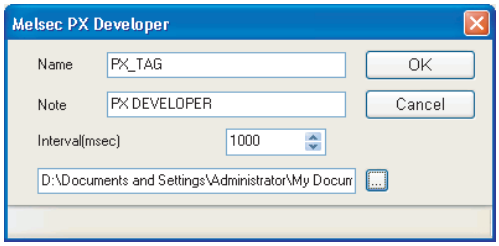


9. The Open dialog box is displayed.
   Select the defined file created in Section 3.3.1, and click the "Open" button.

↓

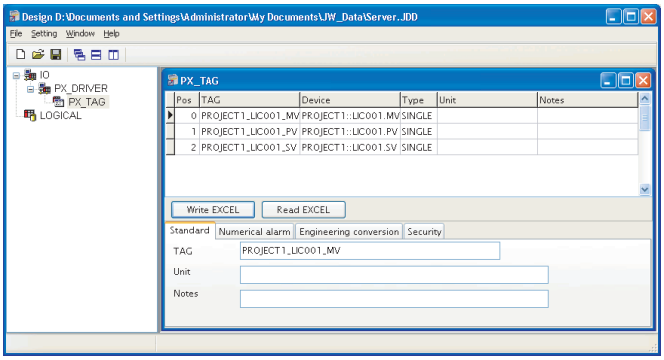


10. The selected file name is displayed on the device area setting dialog box.
    Click the "OK" button.

↓

11. A device area is created under [IO] → [created driver ("PX_DRIVER" for this example)] in the tree.
    Double-click the created device area ("PX_TAG" for this example).

↓

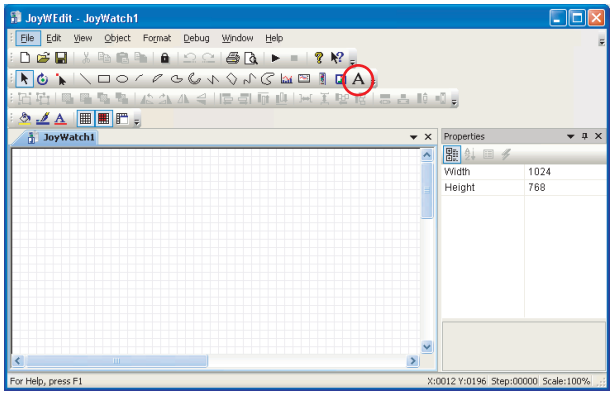


12. A screen for setting device area tag name is displayed.
    Check the tag registered in Section 3.3.1 is displayed.
    Click [File] → [Use server] from the menu.
    Click [File] → [SaveAs…] from the menu.

3.3.3 Referring to and selecting process control tags

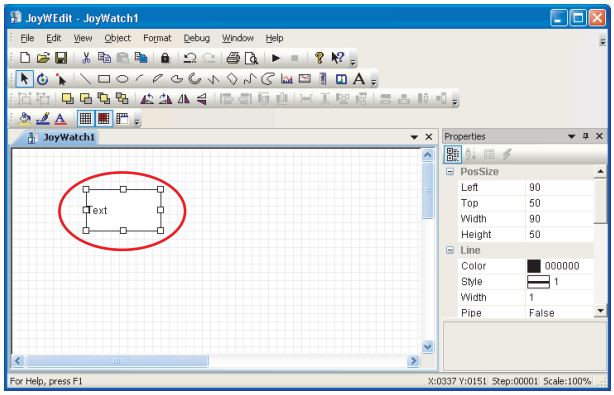
BASIC OPERATION

1. Click [All Programs] → [JoyWatcher] → [Editor] → [JWEdit] from the start menu to start JWEdit.



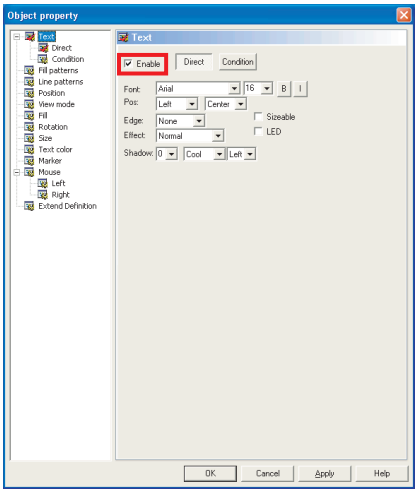
2. The JoyWEdit screen is displayed.
   Click the "Text" button (A).

↓



3. Place the text object on the process view, and double-click it.

↓



4. The Object property dialog box is displayed.
   - Check the "Enable" check box in the text property.
   - Click [Text] → [Direct] in the tree.

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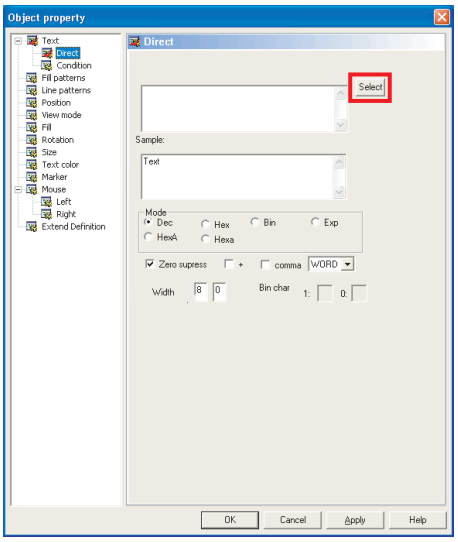
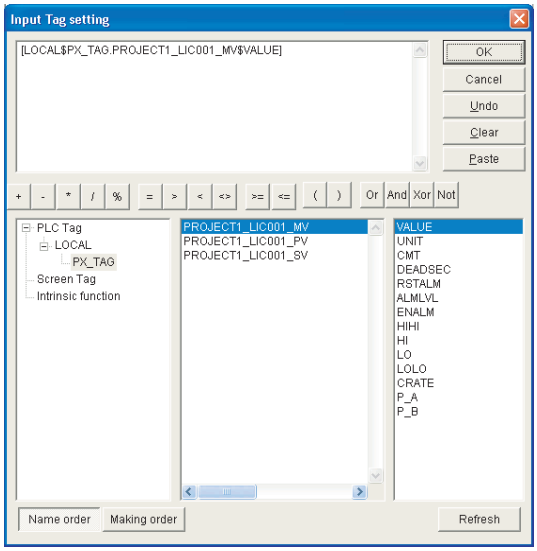


5. The Direct property is displayed.
   Click the "Select" button.

↓



6. The Input Tag setting dialog box is displayed.
   Select the device area ("PX_TAG" for this example) created in Section 3.3.2 under [PLC Tag] in the tree
   Click the tag registered in Section 3.3.1 from the tag selection list at the bottom center, and double-click the item to be displayed from the list at the bottom right.
   The selected tag is displayed in the upper edit box.
   Click the "OK" button.

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POINT
When using the Input Tag setting dialog box, start the server control.

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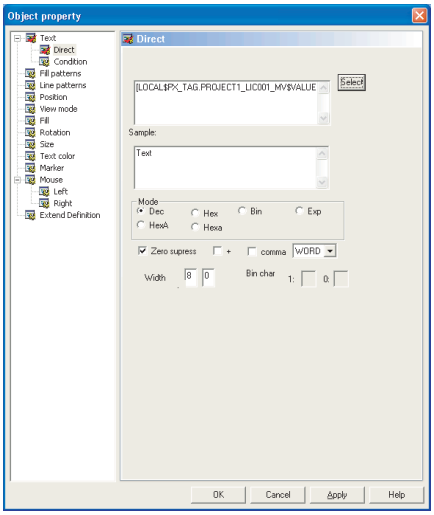


7. The data set on the Input Tag setting dialog box are reflected on the Object property dialog box. Click the "OK" button.

3.4 Operation to Use Faceplates of PX Developer in JoyWatcherSuite

PURPOSE

Use faceplate control of PX Developer for developing process control monitor screens on JoyWatcherSuite to reduce development time.

Setting on JoyWatcherSuite

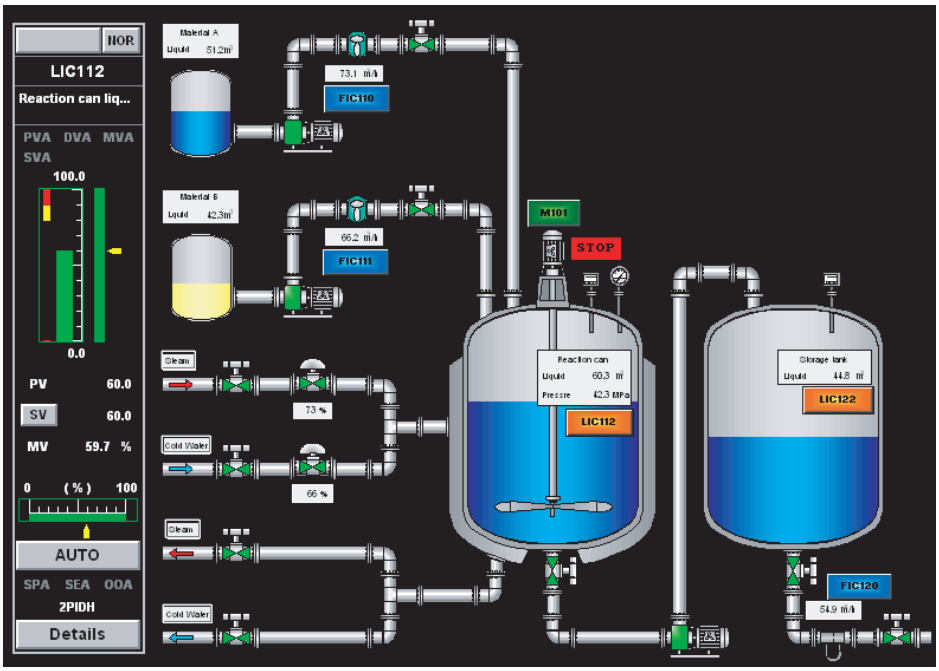
Procedure 1) Paste a faceplate control and configure its setting. (☞Section 3.4.1)

↓

Procedure 2) Set showing faceplate from the object. (☞Section 3.4.2)

Execution on JoyWatcherSuite

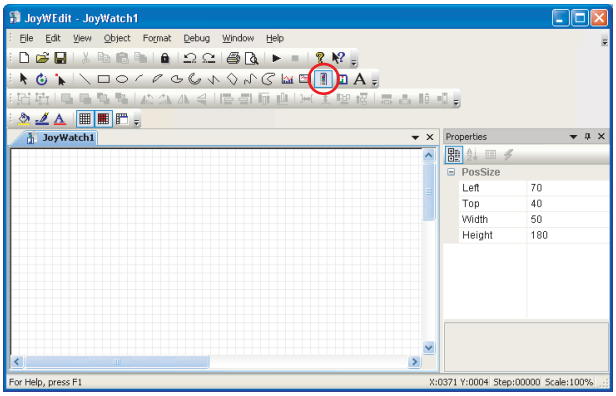
By executing JWPanel after starting the monitor tool, faceplates can be used, process control data can be monitored, and process control parameters can be tuned.



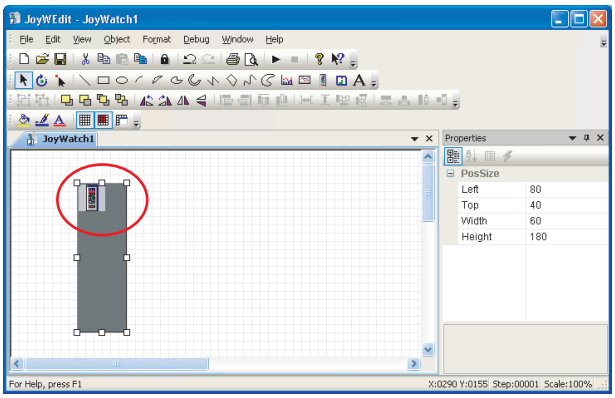
< Example of JoyWatcherSuite operating environment screen >

3.4.1 Pasting/setting faceplate control

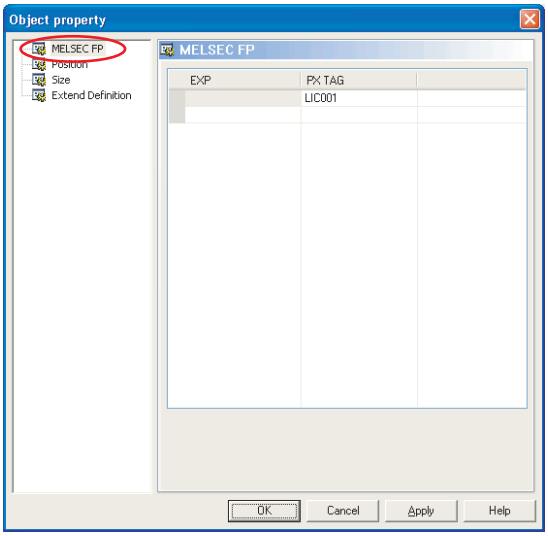
BASIC OPERATION



1. Click [All Programs] → [JoyWatcher] → [Editor] → [JWEdit] from the start menu to start JWEdit.
2. The JoyWEdit screen is displayed.
   Click the "MELSEC FP" button ( ).



3. Place the faceplate object on the process view and double-click it.



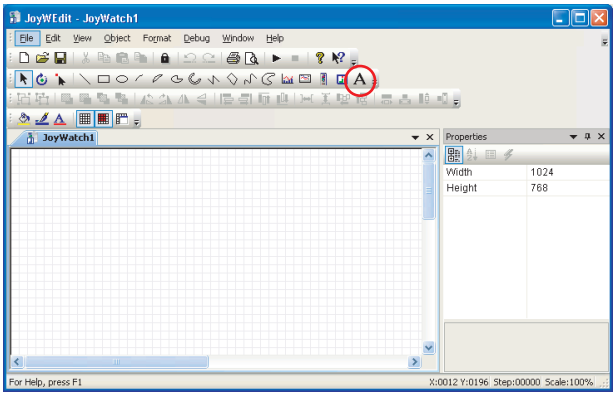
4. The object property dialog box is displayed.
   Click [MELSEC FP] in the tree, and set the PX Developer process control tag in the [PX TAG] column.
   Click the "OK" button.

POINT

- When the same process control tag name exists in different projects, specify the tag as (project name) :: (process control tag name). If the tag is not specified in such format, the process tag in a project with a high priority becomes an access target.
- Faceplate control can be used on a personal computer in which PX Developer is installed and the monitor tool is being started.

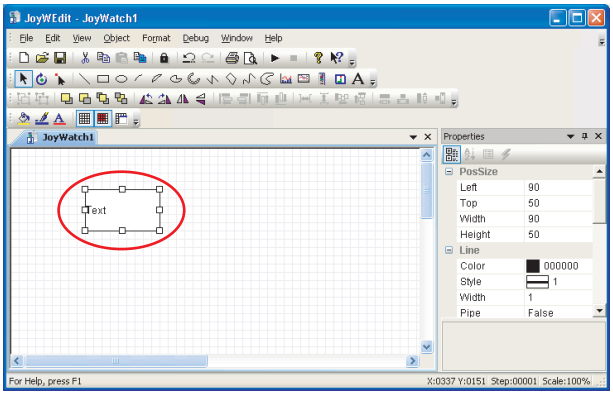
3.4.2 Setting of showing faceplate from object

BASIC OPERATION



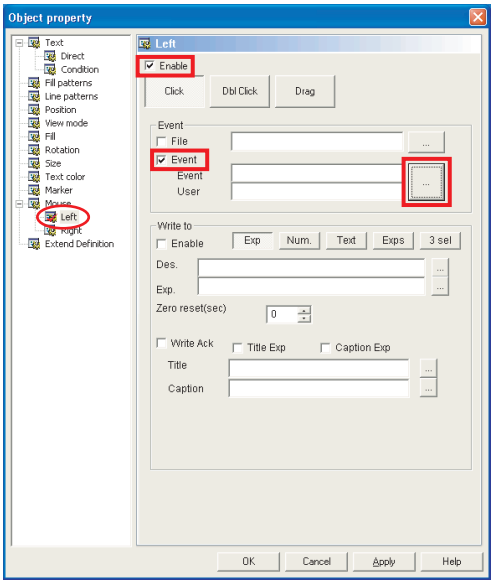
1. Click [All Programs] → [JoyWatcher] → [Editor] → [JWEdit] from the start menu to start JWEdit.
2. The JoyWEdit screen is displayed.
   Click the "Text" button (A).

↓



3. Place the text object on the process view, and double-click it.

↓



4. The Object property dialog box is displayed.
   - Click [Mouse] → [Left] in the tree.
   - Check the "Enable" check box, and the "Event" check box under "Event".
   - Click the 'setting' button under "Event".

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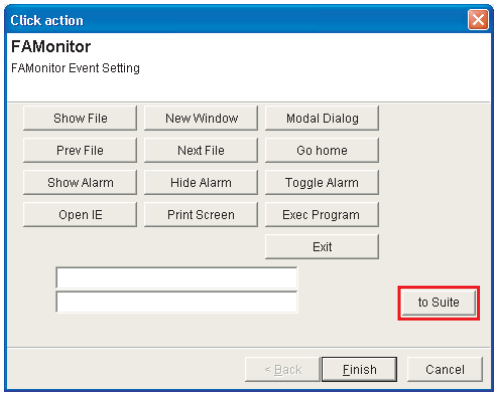
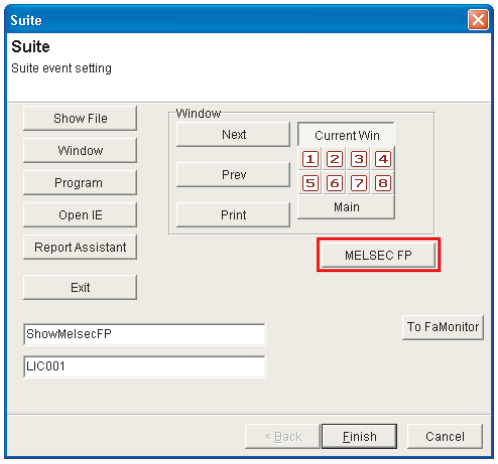


5. The Click action dialog box is displayed.
   Click the "to Suite" button.

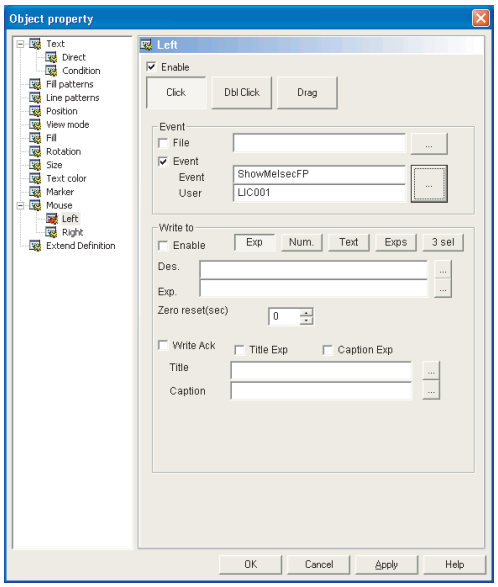
↓



6. The Suite dialog box is displayed.
   - Click the "MELSEC FP" button.
   - Set the PX Developer process controller tag name in the edit box at the bottom.

   Click the "Finish" button.

↓



7. The settings in the Suite dialog box are reflected on the Object property dialog box.
   Click the "OK" button.

POINT

- When the same process control tag name exists in different projects, specify the tag as (project name) :: (process control tag name). If the tag is not specified in such format, the process tag in a project with a high priority becomes an access target.
- "MELSEC FP" can be used on a personal computer in which PX Developer is installed and the monitor tool is being started.
- The operation of MELSEC FP displayed on the preview of JWEdit is invalidated. Use JWPanel to check the operation.

3.5 Operation to Display PX Developer Alarm/Event Information on Alarm Monitor of JoyWatcherSuite

PURPOSE

Display and monitor alarms and events of the PX Developer monitor tool on Alarm Monitor of JoyWatcherSuite.

Setting on JoyWatcherSuite

Procedure 1) Configure the data base settings on JWDesign. (☞Section 3.5.1)

↓

Procedure 2) Set common memory devices on JWDesign. (☞Section 3.5.2)

↓

Procedure 3) Set the security manager. (☞Section 3.5.3)

↓

Procedure 4) Set the alarm monitor. (☞Section 3.5.4)

Execution on JoyWatcherSuite

Alarms of PX Developer can be monitored on Alarm Monitor of JoyWatcherSuite, by executing Alarm Monitor of JoyWatcherSuite after starting the monitor tool.

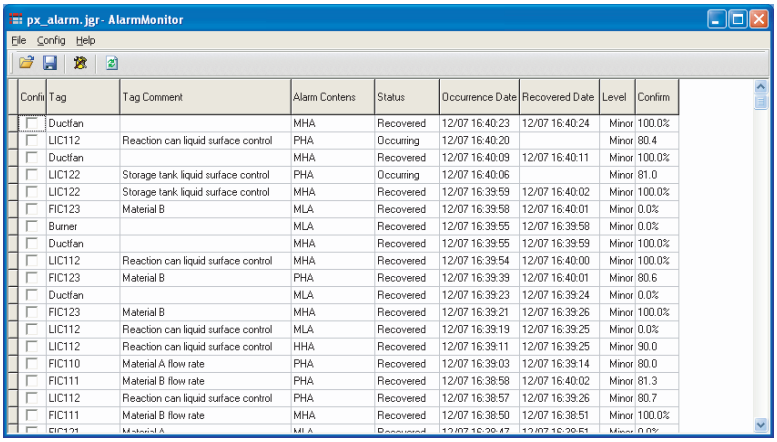
POINT

- Only alarms and events occurred during the execution of monitor tool are displayed on Alarm Monitor of JoyWatcherSuite.
- The monitor tool and operations (verify, delete) relevant to alarms/events managed by JoyWatcherSuite are not interacted. Perform the verification of alarms/events on JoyWatcherSuite side.
- When "Auto ack" is checked on the security manager setting, the alarm/event in the monitor tool is checked regardless of authority of users who operate the monitor tool.

The following shows interaction operation of alarms and events.

(1) Operating alarm monitor screen

The following is an alarm monitor screen of JoyWatcherSuite.



Confi	Tag	Tag Comment	Alarm Contens	Status	Occurrence Date	Recovered Date	Level	Confirm
	Ductfan		MHA	Recovered	12/07 16:40:23	12/07 16:40:24	Minor	100.0%
	LIC112	Reaction can liquid surface control	PHA	Occurring	12/07 16:40:20		Minor	80.4
	Ductfan		MHA	Recovered	12/07 16:40:09	12/07 16:40:11	Minor	100.0%
	LIC122	Storage tank liquid surface control	PHA	Occurring	12/07 16:40:06		Minor	81.0
	LIC122	Storage tank liquid surface control	MHA	Recovered	12/07 16:39:59	12/07 16:40:02	Minor	100.0%
	FIC123	Material B	MLA	Recovered	12/07 16:39:58	12/07 16:40:01	Minor	0.0%
	Burner		MLA	Recovered	12/07 16:39:55	12/07 16:39:58	Minor	0.0%
	Ductfan		MHA	Recovered	12/07 16:39:55	12/07 16:39:59	Minor	100.0%
	LIC112	Reaction can liquid surface control	MHA	Recovered	12/07 16:39:54	12/07 16:40:00	Minor	100.0%
	FIC123	Material B	PHA	Recovered	12/07 16:39:39	12/07 16:40:01	Minor	80.6
	Ductfan		MLA	Recovered	12/07 16:39:23	12/07 16:39:24	Minor	0.0%
	FIC123	Material B	MHA	Recovered	12/07 16:39:21	12/07 16:39:26	Minor	100.0%
	LIC112	Reaction can liquid surface control	MLA	Recovered	12/07 16:39:19	12/07 16:39:25	Minor	0.0%
	LIC112	Reaction can liquid surface control	HHA	Recovered	12/07 16:39:11	12/07 16:39:25	Minor	90.0
	FIC110	Material A flow rate	PHA	Recovered	12/07 16:39:03	12/07 16:39:14	Minor	80.0
	FIC111	Material B flow rate	PHA	Recovered	12/07 16:38:58	12/07 16:40:02	Minor	81.3
	LIC112	Reaction can liquid surface control	PHA	Recovered	12/07 16:38:57	12/07 16:39:26	Minor	80.7
	FIC111	Material B flow rate	MHA	Recovered	12/07 16:38:50	12/07 16:38:51	Minor	100.0%

< Example of alarm monitor screen of JoyWatcherSuite >

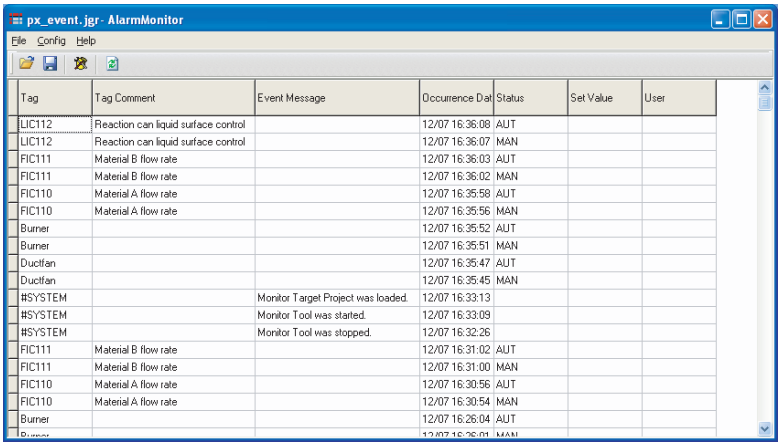
Alarm Monitor of JoyWatcherSuite receives event notifications from the monitor tool and displays them.

POINT

For the correspondence table of alarm items notified by the monitor tool to JoyWatcherSuite, refer to Appendix 3.1.

(2) Operating event monitor screen

The following is an alarm monitor screen of JoyWatcherSuite.



Tag	Tag Comment	Event Message	Occurrence Dat	Status	Set Value	User
LIC112	Reaction can liquid surface control		12/07 16:36:08	AUT		
LIC112	Reaction can liquid surface control		12/07 16:36:07	MAN		
FIC111	Material B flow rate		12/07 16:36:03	AUT		
FIC111	Material B flow rate		12/07 16:36:02	MAN		
FIC110	Material A flow rate		12/07 16:35:58	AUT		
FIC110	Material A flow rate		12/07 16:35:56	MAN		
Burner			12/07 16:35:52	AUT		
Burner			12/07 16:35:51	MAN		
Ductfan			12/07 16:35:47	AUT		
Ductfan			12/07 16:35:45	MAN		
#SYSTEM		Monitor Target Project was loaded.	12/07 16:33:13			
#SYSTEM		Monitor Tool was started.	12/07 16:33:09			
#SYSTEM		Monitor Tool was stopped.	12/07 16:32:26			
FIC111	Material B flow rate		12/07 16:31:02	AUT		
FIC111	Material B flow rate		12/07 16:31:00	MAN		
FIC110	Material A flow rate		12/07 16:30:56	AUT		
FIC110	Material A flow rate		12/07 16:30:54	MAN		
Burner			12/07 16:26:04	AUT		

< Example of alarm monitor screen of JoyWatcherSuite >

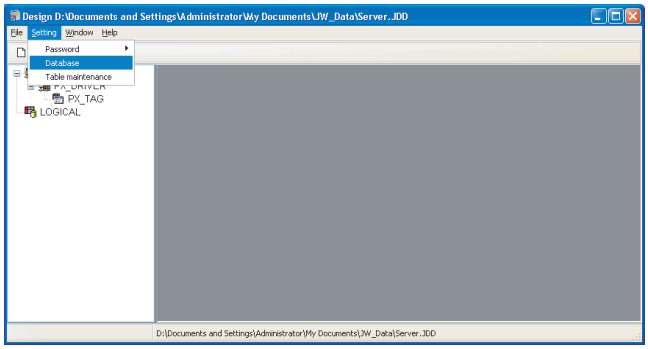
JoyWatcherSuite receives event notifications from the monitor tool and displays them.

POINT

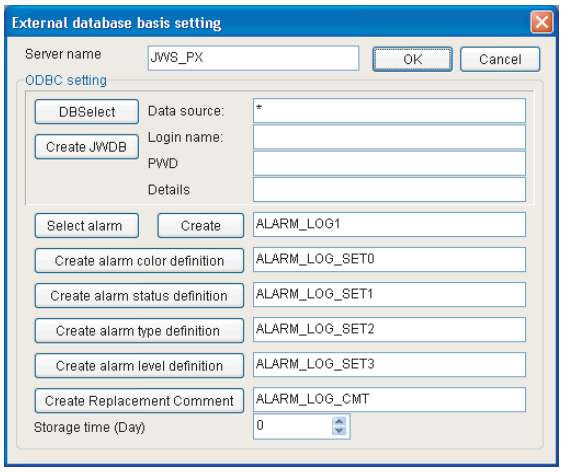
For the correspondence table of event items notified by the monitor tool to JoyWatcherSuite, refer to Appendix 3.2.

3.5.1 Configuring database settings

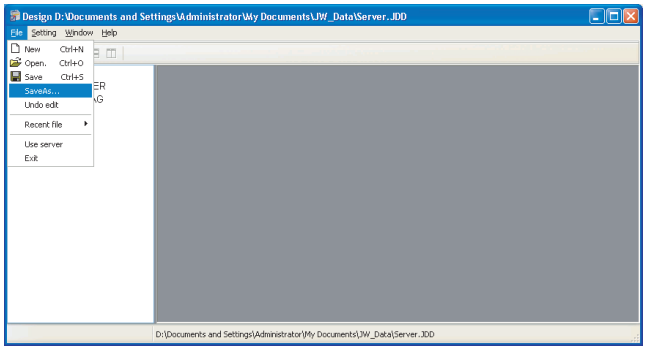
BASIC OPERATION



1. Click [All Programs] → [JoyWatcher] → [Basic Setting] → [JWDesign] from the start menu to start the server design.
2. The JWDesign screen is displayed
   Click [Setting] → [Database] from the menu.



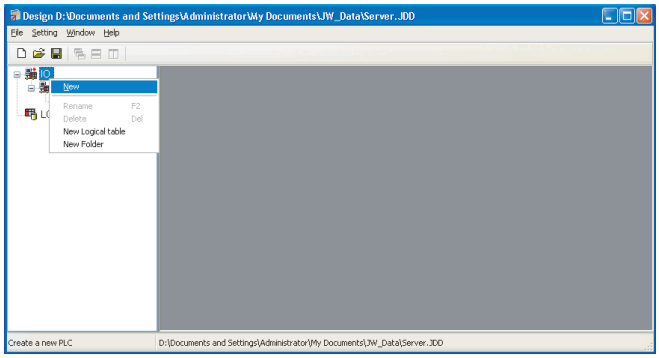
3. The External database basis setting dialog box is displayed.
   - Input a server name.
   - Input " * " for the data source name.
   - Click the "Create JWDB" button.
     Click the "OK" button.



4. Click [File] → [SaveAs…] from the menu.

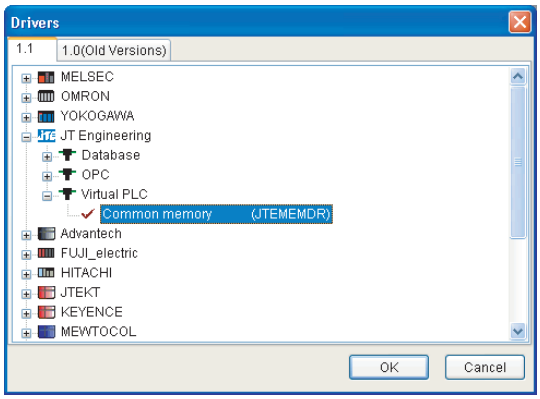
3.5.2 Server design

BASIC OPERATION



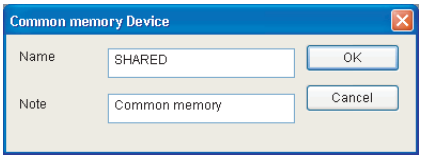
1. Click [All Programs] → [JoyWatcher] → [Basic Setting] → [JWDesign] from the start menu to start the server design.
2. The JWDesign screen is displayed
   Right-click [IO] in the tree, and click [New] from the menu.

↓



3. The Drivers dialog box is displayed.
   Select [JT Engineering] → [Virtual PLC] → [Common memory], and click the "OK" button.

↓



4. The Common memory Device dialog box is displayed
   Input a connection name and note, and click the "OK" button.

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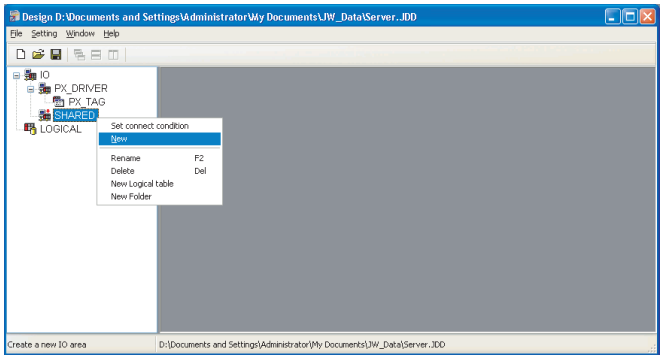
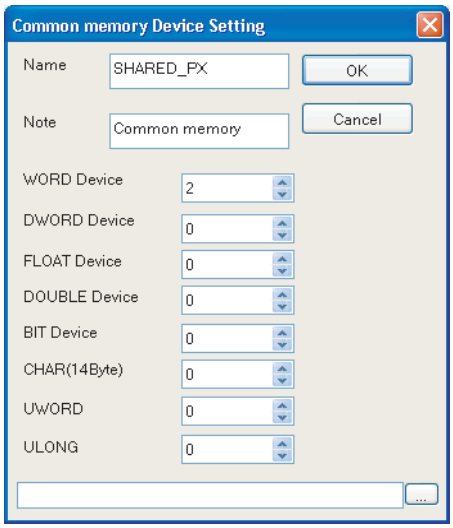


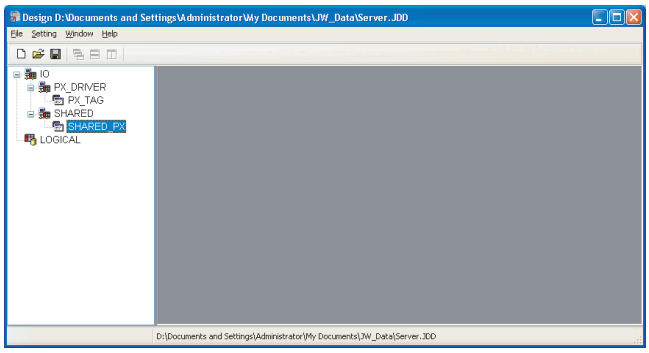
5. A common memory is created under [IO] in the tree.
   Right-click the created common memory ("SHARED" for this example), and click [New] from the menu.

↓



6. The Common memory Device Setting dialog box is displayed.
   • Input a connection name and note.
   • Input "2" for "WORD Device".
   Click the "OK" Button.

↓



7. A common memory device is created under [IO] → [created common memory ("SHARED" for this example)].
   Select the created common memory device ("SHARED_PX" for this example), and double-click it.

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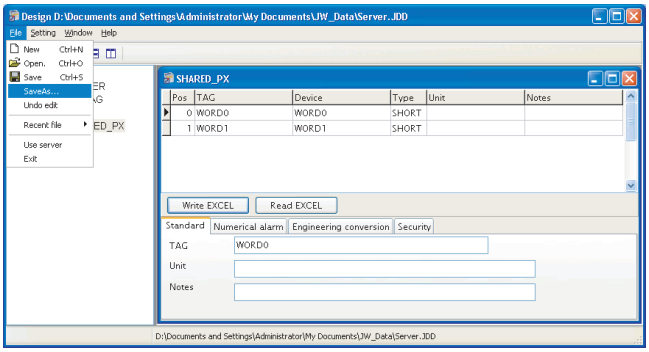
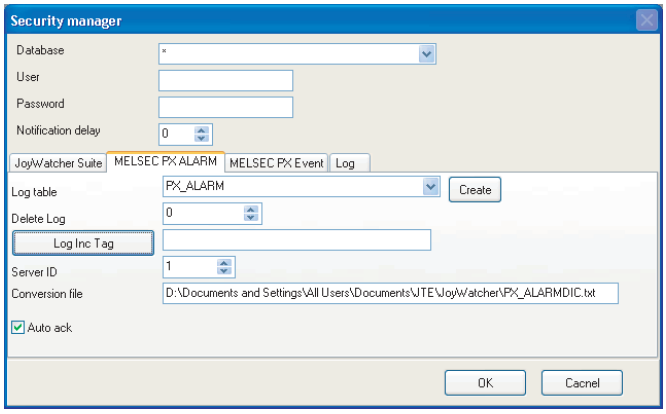


8. A screen for setting device area tag name is displayed.
   Click [File] → [SaveAs…] in the menu.
   The created common memory device is used for the security manager setting in Section 3.5.3 and the alarm monitor setting in Section 3.5.4.

3.5.3 Setting security manager

BASIC OPERATION



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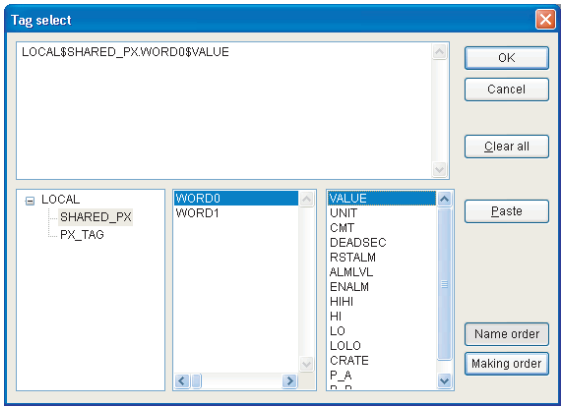

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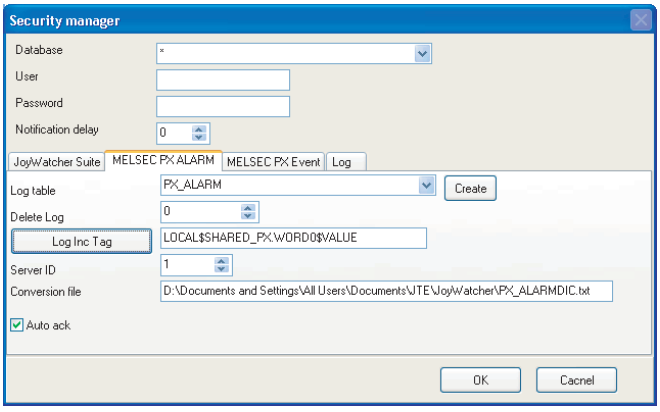

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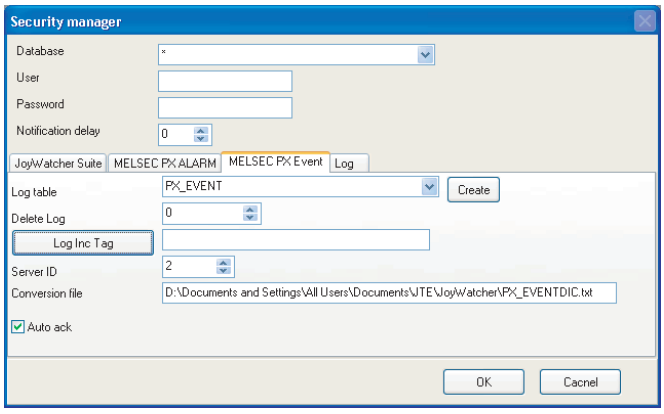
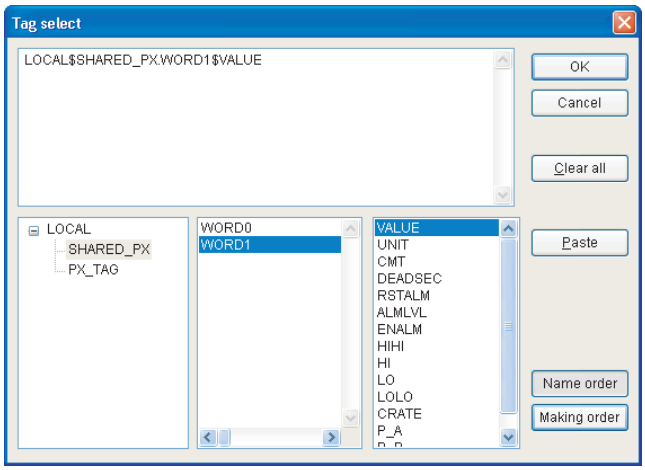
(To the next page)

1. Click [All Programs] → [JoyWatcher] → [Execution] → [SecurityManager] from the start menu to start the security manager.
2. Right-click the security manager icon ( ) in the task tray, and click [setUp] from the menu.
3. The Security manager screen is displayed
   - Select " * " from the database list box.
   - Input a user name for a connection and if a password is required, input a password.
4. Set a table to store the PX Developer alarm information in the <<MELSEC PX ALARM>> tab.
   Input a table name for Log table, and click the "Create" button.
5. Set a tag to notify alarm changes to the alarm monitor.
   Click the "Log Inc Tag" button.
6. The Tag select dialog box is displayed.
   Select the common memory device created in Section 3.5.2 in the tree. ("SHARED_PX" for this example)
   Click "WORD0" in the tag selection list displayed in the center, and double-click "VALUE" from the list on the right.
   The selected tag name is displayed in the above edit box.
   Click the "OK" button.
7. The settings in the Tag select dialog box are reflected on the Log Inc Tag edit box.

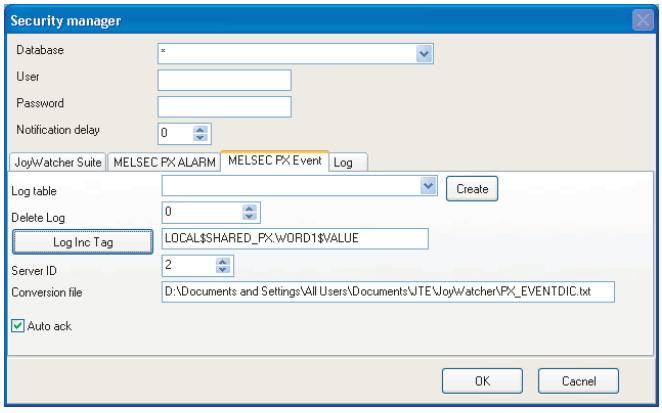
(From the previous page)



8. Set a table to store the PX Developer event information in the <<MELSEC PX Event>> tab. Input a table name for Log table, and click the "Create" button.
9. Set a tag to notify event changes to the alarm monitor.
   Click the "Log Inc Tag" button.



10. The Tag select dialog box is displayed.
    Select the common memory device created in Section 3.5.2 in the tree. ("SHARED_PX" for this example)
    Click "WORD1" in the tag selection list displayed in the center, and double-click "VALUE" from the list on the right.
    The selected tag name is displayed in the above edit box.
    Click the "OK" button.



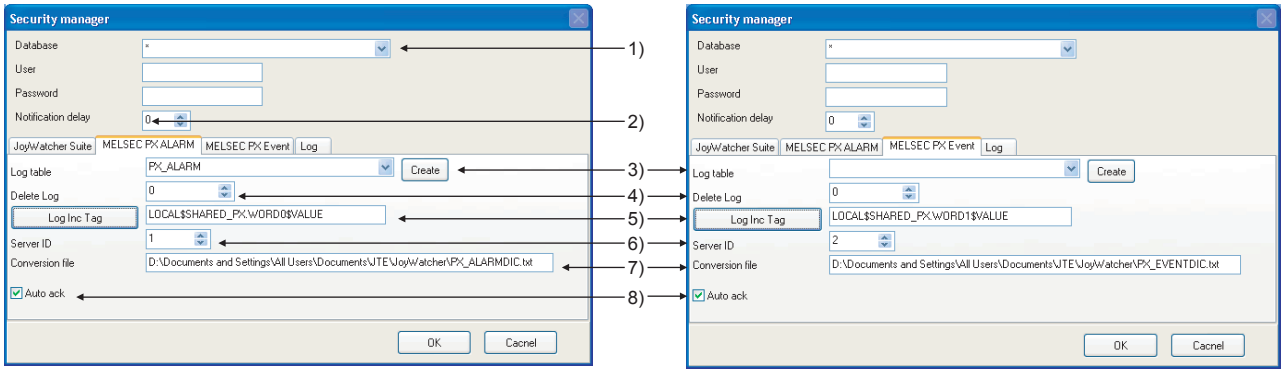
11. The settings in the Tag select dialog box are reflected on the Log Inc Tag edit box.
12. For setting other items, refer to the next page.
13. Click the "OK" button.

POINT

- To create a log table, start the server control.
- To use the Tag select dialog box, start the server control.
- To operate with the monitor toolbar, check the "Auto ack" check box in each tab.

3-26

DISPLAY/SETTING SCREEN



<<MELSEC PX ALARM>> tab

<<MELSEC PX Event>> tab

DISPLAY/SETTING DATA

No.	Item	Description
1)	Database list box	Select a database to store alarms/events of PX Developer.
2)	Notification delay edit box	Set an interval of time until changed tags are incremented after data are stored to database.
3)	Log table list box	Set a table to store alarms/events of PX Developer. *1 The created log table is used for the alarm monitor setting in Section 3.5.4.
4)	Delete Log edit box	Set a number of days to keep the logs. When "0" is set, logs are not deleted.
5)	Log Inc Tag edit box	Set a tag (common memory device created in Section 3.5.2) to notify alarm/event changes to the alarm monitor. *2, *3
6)	Server ID edit box	Set an ID to identify the function storing order when data are stored to the database.
7)	Conversion file	When a file name is specified, obtain all alarms/events from the monitor tool at the security manager start, and alarms/events which are not notified to the security manager are also stored to the database. *4 When a file name is not specified, only alarms/events which occurred during the security manager start are stored to the database.
8)	Auto ack checkbox	Check this to confirm PX Developer side alarms/events at the moment when data are stored to the database of JoyWatcherSuite. (The alarm/event row is not displayed in the monitor tool bar.)

*1: Set tables with a different name for alarms and events.

*2: Set the same tag with the "JoyWatcher Tag Change" tag of the alarm monitor auto update setting.

*3: Set tags with a different name for alarms and events.

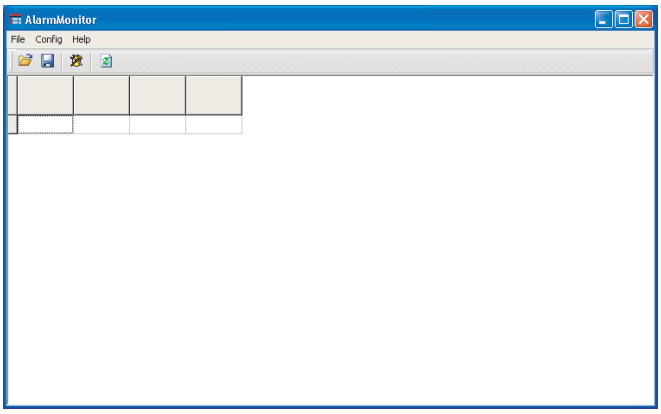
*4: Set files with a different name for alarms and events.

POINT

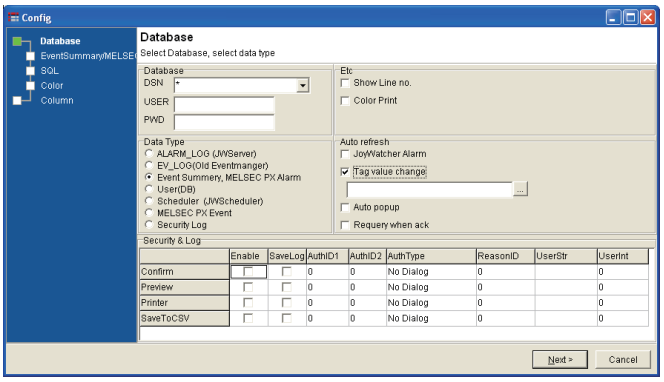
- For operations of alarms/events, it is recommended that the "Auto ack" check box is checked and Alarm Monitor of JoyWatcherSuite is used.
- For alarms whose occurrence status is "information" (alarms whose recovery date is not displayed), the automatic confirmation is not performed to prevent frequent alarm occurrence even when the "Auto ack" check box is checked. When an alarm whose occurrence status is "information" is occurred, check the alarm on the alarm screen of the monitor tool after fixing the problem that caused the alarm.

3.5.4 Setting alarm monitor

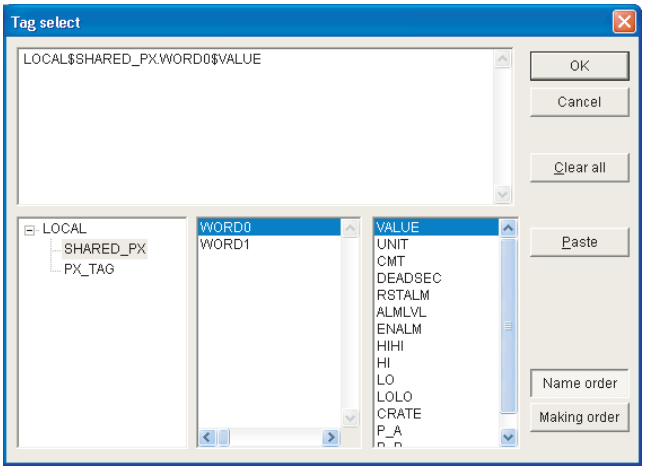
BASIC OPERATION



1. Click [All Programs] → [JoyWatcher] → [Editor] → [EvGridMon] from the start menu to start the alarm monitor.
2. The AlarmMonitor screen is displayed.
   Click the "Config" button. ( )



3. The Database screen of the Config dialog box is displayed
   - Input " * " for DSN under Database.
   - Select "EventSummary/MELSEC PX Alarm" for Data type.
   - Check the "JoyWatcher Tag" check box.
   - Click the 'tag select' button. ( )



4. The Tag Select dialog box is displayed.
   Select the common memory device created in Section 3.5.2 in the tree. ("SHARED_PX" for this example)
   Click the same tag set for Log Inc Tag in the <<MELSEC PX ALARM>> of security manager ("WORD0" for this example) in the tag selection list displayed in the center, and double-click "VALUE" from the list on the right.
   The selected tag name is displayed in the above edit box.
   Click the "OK" button.

(To the next page)

POINT
To use the Tag select dialog box, start the server control.

(From the previous page)

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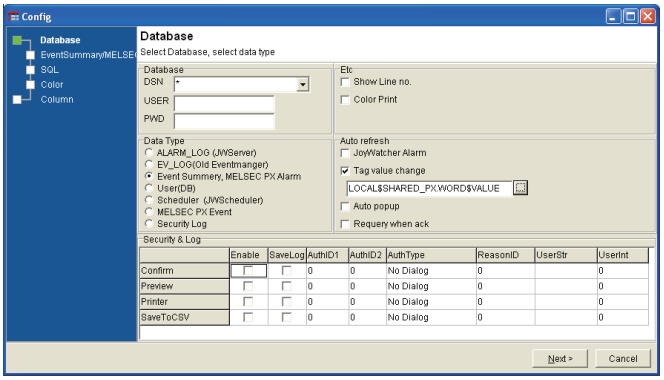

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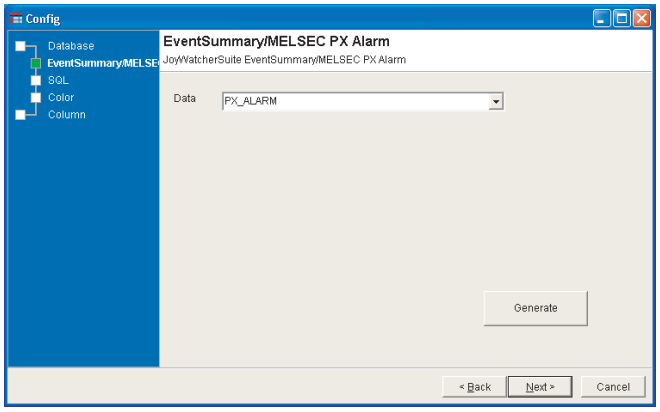

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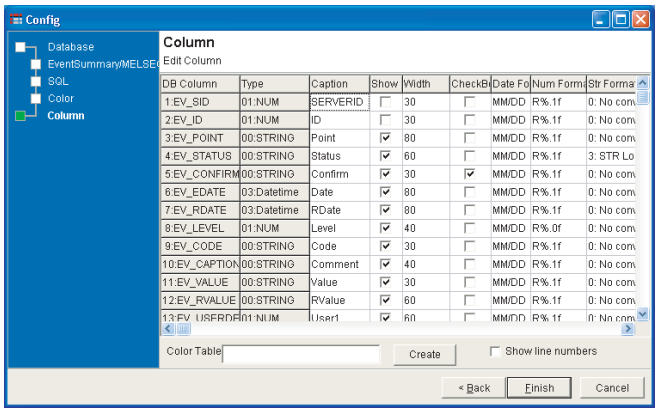


5. The settings in the Tag select dialog box are reflected on the JoyWatcher Tag edit box.
   Click the "Next >" button.

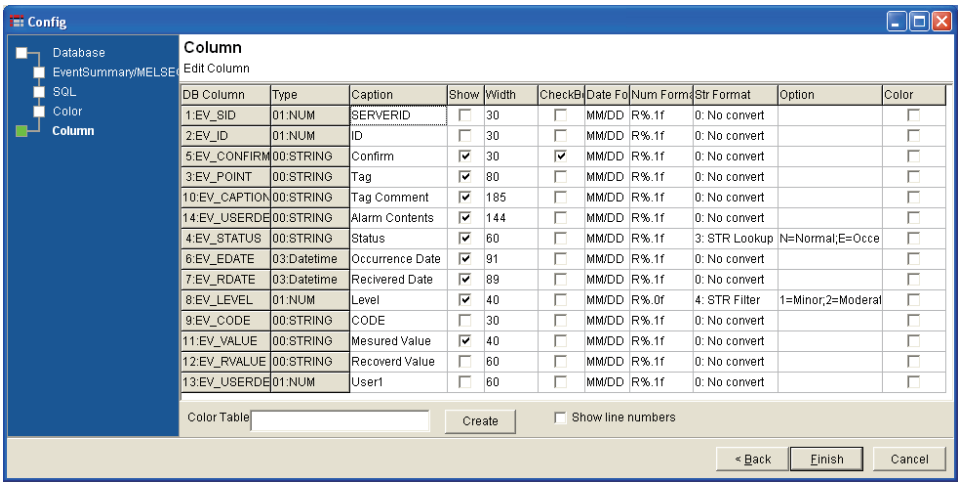
6. The EventSummary/MELSEC PX Alarm screen is displayed.
   Select the log table created in Section 3.5.3 from the data table list box, and click the "Generate" button.

7. The Column screen is displayed.
   Set details of the displayed items and click the "Finish" button.

Configure the settings for data type "MELSEC PX Event" with the same procedure.

POINT

The following shows the setting example to arrange the display as same as the monitor tool.



3.6 Operation to Perform Interactive Start/Stop of PX Developer Monitor Tool on JoyWatcherSuite

PURPOSE

In order to interact between the JoyWatcherSuite server and the PX Developer monitor tool, the PX Developer monitor tool needs to be started before starting the JoyWatcherSuite server. By performing the MELSEC PX interact setting using JWLauncher, the PX developer monitor tool can be automatically started before starting the JoyWatcherSuite server.
To use the alarm integration function, the security manager needs to be started after starting the JoyWatcherSuite server. By using JWLauncher, the security manager can be automatically started after starting the JoyWatcherSuite server.

Setting on JoyWatcherSuite

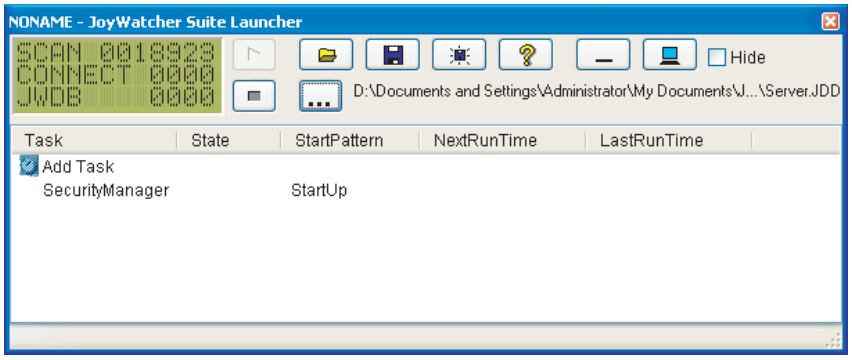
Procedure 1) Set the MELSEC PX interaction on JWLauncher. (☞Section 3.6.1)

↓

Procedure 2) Register tasks of security manager on JWLauncher. (☞Section 3.6.2)

Execution on JoyWatcherSuite

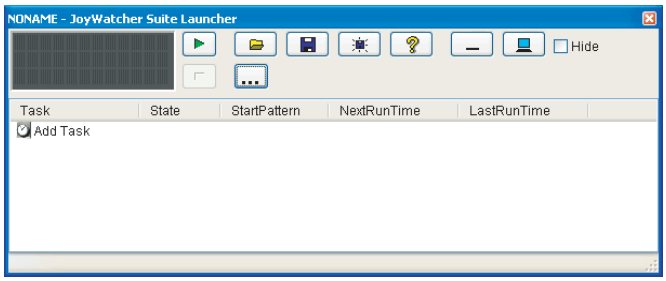
The functions are automatically started in the order of monitor tool, JoyWatcherSuite server, and security manager, by clicking the "Start Server" button () on JWLauncher.
Monitor tool, JoyWatcherSuite server, and security manager are automatically stopped by clicking the "Stop Server" button ().



< Example of JoyWatcherSuite JWLauncher >

3.6.1 Setting interactive start/stop of monitor tool

BASIC OPERATION



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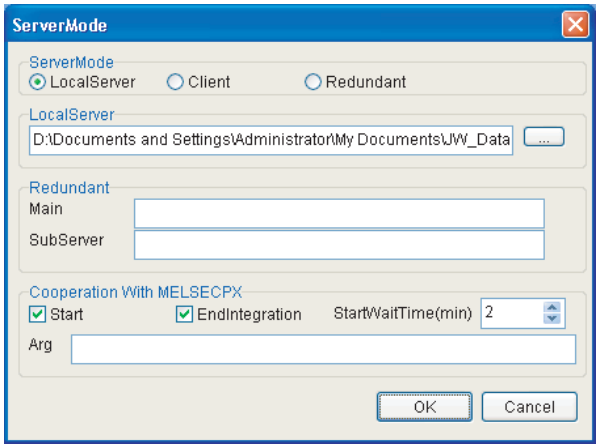


↓

(To Section 3.6.2)

1. Click [All Programs] → [JoyWatcher] → [Execution] from the start menu and click [JWLauncher] while holding down the Shift key to start JWLauncher.
2. The JoyWatcher Suite Launcher screen is displayed.
   Click the "Select JDD" button ( ).
3. The ServerMode dialog box is displayed.
   - Select LocalServer for Server Mode.
   - Specify the server design file (".JDD") created in Section 3.3.2 for Local Server.
   - Check the "Start" and "EndIntegration" check boxes under Cooperation with MELSEC PX.
   - Input a value for Start Wait Time.

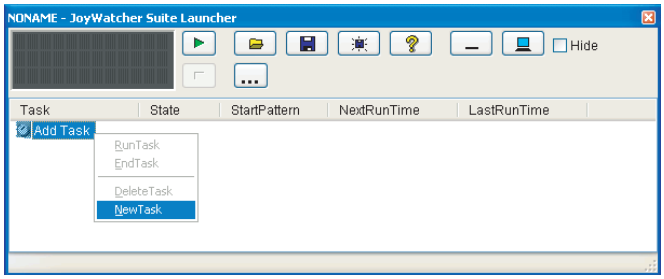
   Click the "OK" button.

POINT

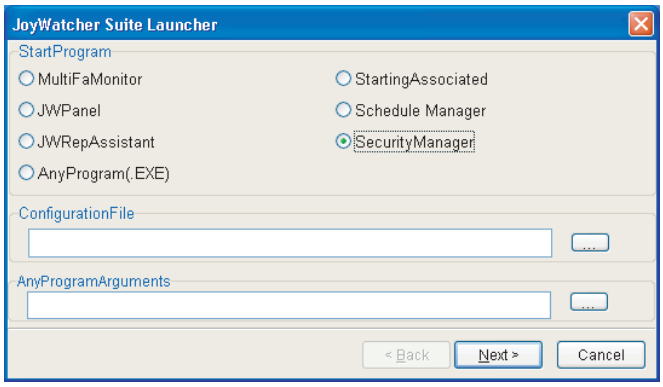
- To perform interactive stop of the monitor tool, the mode of the monitor tool needs to be changed to the engineer mode. For changing the mode to the engineering mode when starting the monitor tool, refer to "Monitor Tool Startup Option" in "PX Developer Version 1 Operating Manual (Monitor Tool)".
- The monitor tool cannot perform interactive stop when any dialog box is being displayed. End the monitor tool manually.
- If the monitor tool is restarted while JoyWatcherSuite and the monitor tool are in an interact operation, JoyWatcherSuite must be restarted as well.
- When the start time of the monitor tool becomes longer because of the large number of monitor target projects, adjust the Start Wait Time.
- When "EndIntegration" of the MELSEC PX interaction setting is enabled on JWLauncher, do not register JWLauncher to user graphic of the monitor tool.

3.6.2 Setting interactive start/stop of security manager

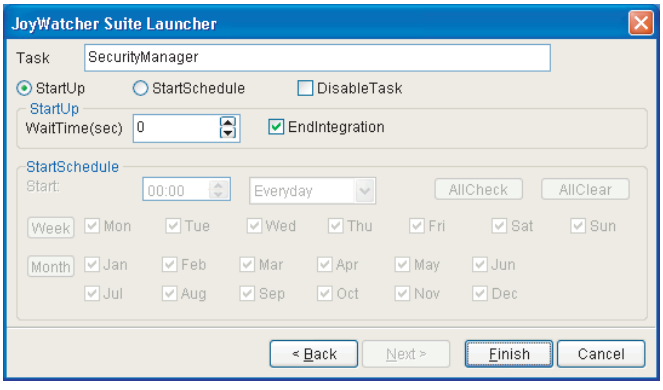
BASIC OPERATION



1. Click [All Programs] → [JoyWatcher] → [Execution] from the start menu and click [JWLauncher] while holding down the Shift key to start JWLauncher.
2. The JoyWatcher Suite Launcher screen is displayed.
   Right-click "Add Task" and click [NewTask] from the menu.



3. The setting dialog box is displayed.
   Select "SecurityManager" for Start Program, and click the "Next >" button.



4. The setting dialog box is displayed.
   - Select "StartUp".
   - Check the "EndIntegration" check box.

   Click the "Finish" button.

4 TROUBLESHOOTING

(1) Troubleshooting related to the communication function regarding process control tag names

This section explains troubleshooting for failures possibly occur in relation to the communication function regarding process control tag names.

Trouble	Cause/corrective action	Reference
While JWPanel is in operation, the monitor data indicates "????????".	The following are the possible factors. • The monitor tool is not started. • The JoyWatcherSuite server control is not started. • The assignment information database, to which the relevant process control tags are registered, is not registered to the monitor target project of the monitor tool. • The relevant assignment information database is registered to the monitor target project of the monitor tool after starting the monitor tool or JoyWatcherSuite server control. Check if JWPanel is executed by the following procedure. 1. Start the monitor tool 2. Register/apply the relevant assignment information database to the monitor target project of the monitor tool. 3. Start the JoyWatcherSuite server control. 4. Start JWPanel.	Section 3.1
Although the process control tag data in PX Developer are changed while JWPanel is in operation, the monitor data do not change.	The following are the possible factors. • The monitor tool is not started. • The assignment information database, to which the relevant process control tag is registered, is not registered to the monitor target project of the monitor tool. • The monitor tool is in communication error. • The user who is operating the monitor tool does not have the authority of operation for changing the tag data items. Check and set the following items. • Check if the monitor tool is in operation. • Check if the process control tag exists in the monitor target project of the monitor tool. • Check for the communication error from the list of PX Developer alarms. • Switch to a user who has the authority of operation for changing the process control tag data items in the monitor tool.	Section 3.1

(2) Troubleshooting related to the incorporation function of faceplate control

For troubleshooting for failures possibly occur in relation to the incorporation function of faceplate control, refer to "Error list" in "ActiveX control" section of "PX Developer Operating Manual (Monitor Tool)".

(3) Troubleshooting related to the alarm integration function

This section explains troubleshooting for failures possibly occur in relation to the alarm integration function.

Trouble	Cause/corrective action	Reference
Alarms or events of the monitor tool are not displayed on the alarm monitor of JoyWatcherSuite.	The monitor tool may not be executed or JoyWatcherSuite may not be set correctly. Check the following items. • Start the monitor tool in advance. • Check the external database settings in the JoyWatcherSuite server design. • Check if a tag used for "Log Inc Tag" is registered to common memory in the JoyWatcherSuite server design. • The "Log Inc Tag" settings are different between JoyWatcherSuite server design, security manager, and alarm monitor. • Check the settings of JoyWatcherSuite security manager.	Section 3.5 Section 3.6

(4) Troubleshooting related to JWEdit

The event operation set on the object cannot be executed on the preview screen of JWEdit.
Therefore, when executing operation check of event such as "MELSEC FP" and "ExternalProgram", check with JWPanel.

APPENDIX

Appendix 1 Data Types of Process Control Tag Items

For lists of tag items of process control tag that can be selected on MELSEC PX tag selection, refer to "List of Various Tag Type/Tag Data" in "PX Developer Programming Manual".
The following table shows the data types in JoyWatcherSuite corresponding to the data types of process control tag item in PX Developer.

Data type in PX Developer	Data type in JoyWatcherSuite
BOOL	BIT
INT	SHORT
DINT	LONG
WORD	USHORT
REAL	SINGLE

Appendix 2 Main Tag Items

Main tag items of process control tag displayed on the MELSEC PX tag selection are the tag items which perform the current value collection and event notification.
The following table shows the tag items which perform current value collection.

Tag FB name	Current value collection tag		Tag FB name	Current value collection tag	
PID, 2PID, PIDP, SPI, IPD, BPI, R, ONF2, ONF3	PV	Process variable	MWM	PV	Process variable
	MV	Manipulated variable		MV	Manipulated variable
	SV	Setting value	SEL	PV	Process variable
2PIDH, SWM, PFC_SF, PFC_SS, PFC_INT	PV	Process variable		MV	Manipulated variable
	MV	Manipulated variable		SLNO	Selection No.
	SVC	Setting value (current)	BC	PV	Process variable
	SV	Setting value (target)		SV1	Setting value 1
PGS	MV	Manipulated variable		SV2	Setting value 2
	SV	Setting value		SV	Setting value
	TYP	Operation type	PSUM	PV	Process variable
PGS2	SV	Setting value	NREV, REV, MVAL1, MVAL2, PB	DIM	Monitor input buffer
	STC	Executing step No.			
	T	Time in the step	TIMER1, TIMER2, COUNT1, COUNT2	PV	Process variable
	PV	Process variable		PSV	Setting value
	TYP	Operation type		SV	Setting value
	SV0C	Start point (current)		DIM	Monitor input buffer
MOUT	MV	Manipulated variable	ALM, ALM_64PT, MSG, MSG_64PT	No corresponding current value collection tags.	
MONI	PV	Process variable			
PVAL	PV	Motor valve opening	HTCL	MV_HT	Heating manipulated variable
	SVC	Setting value of valve opening (current)		MV_CL	Cooling manipulated variable
	SV	Setting value of valve opening (target)		SV	Setting value
	VOUT	Command signal output status			
	DIM	Monitor input buffer			

App

The following table shows the tag items which perform event notification.

Tag FB name	Event notification tag		Tag FB name	Event notification tag	
PID, 2PID, NREV, REV, MVAL1, MVAL2, PGS2, HTCL	MODE*1	Mode	BC, PSUM, TIMER1, TIMER2, COUNT1, COUNT2	ALM*1	Alarm
	ALM*1	Alarm		CTNO	Lookout tag No.
	CTNO	Lookout tag No.		DIM*1	Monitor input buffer
	DIM*1	Monitor input buffer	PB	MODE*1	Mode
2PIDH, SWM, PFC_SF, PFC_SS, PFC_INT, PVAL	MODE*1	Mode		CTNO	Lookout tag No.
	ALM*1	Alarm		DIM*1	Monitor input buffer
	ALM2*1	Alarm 2	ALM	ALM*1	Alarm
	CTNO	Lookout tag No.	ALM_64PT	ALM_W1*1	Alarm 1 to 16
	DIM*1	Monitor input buffer		ALM_W2*1	Alarm 17 to 32
PIDP, SPI, IPD, BPI, R, ONF2, ONF3, MWM, SEL, MOUT, PGS	MODE*1	Mode		ALM_W3*1	Alarm 33 to 48
	ALM*1	Alarm		ALM_W4*1	Alarm 49 to 64
	CTNO	Lookout tag No.	MSG	MSG*1	Message
MONI	ALM*1	Alarm	MSG_64PT	MSG_W1*1	Message 1 to 16
	CTNO	Lookout tag No.		MSG_W2*1	Message 17 to 32
				MSG_W3*1	Message 33 to 48
				MSG_W4*1	Message 49 to 64

*1: This tag item consists of multiple BOOL type variables; however, it is displayed as a BOOL type variable on the MELSEC PX tag selection screen.

App

Appendix 3 Correspondence Table for Items of Monitor Tool and JoyWatcherSuite

Appendix 3.1 Correspondence table for alarm items

The following is a correspondence table for alarm items notified to JoyWatcherSuite by the monitor tool.
In the alarm monitor of JoyWatcherSuite, a display name, item, and display format can be selected in the property.
For details, refer to "JoyWatcherSuite user's guide".

PX Developer monitor tool		Alarm monitor of JoyWatcherSuite		
Alarm item	Expression	Alarm item	Maximum number of characters[*1]	Expression
Confirm Check	ON/OFF	EV_CONFIRM	-	ON/OFF
Tag	FIC001	EV_POINT	64	"Tag" Example) FIC001
Tag Comment	Tank 1 water level	EV_CAPTION	64	"Tag Comment" Example) Tank 1 water level
Alarm Contents[*2]	MHA	EV_USERDEF2[*2]	64	"Alarm Contents" Example) MHA
Occurrence Date	The format depends on the setting of OS.	EV_EDATE	-	Depends on the setting of date format in the alarm monitor.
Recovered Date		EV_RDATE		
Level	Minor/Major	EV_LEVEL	-	Minor: 1, major: 3
Measured Value	100%	EV_VALUE	64	100%
No correspondence		EV_SID	-	Server ID[*3 *4]
		EV_ID	-	Serial number[*3]
		EV_STATUS	1	Event status is saved. E: Occurrence R: Recovery C: Information
		EV_CODE	1	"0"
		EV_RVALUE	64	"(blank space)"
		EV_USERDEF1	-	"0"

*1: Characters that are exceeded the maximum number of characters are not stored to the database.

*2: The description corresponds to "Tag Data Item Display of Alarm" on the option setting of the monitor tool is displayed.

*3: EV_SID is an ID to distinguish programs which are inserted to the same table. EV_SID+EV_ID is a unique ID.

*4: EV_SID is the same as "Server ID" on the Security manager screen.

Appendix 3.2 Correspondence table for event items

The following is a correspondence table for the event items notified to JoyWatcherSuite by the monitor tool.
In the alarm monitor of JoyWatcherSuite, a display name, item, and display format can be selected in the property.
For details, refer to "JoyWatcherSuite user's guide".

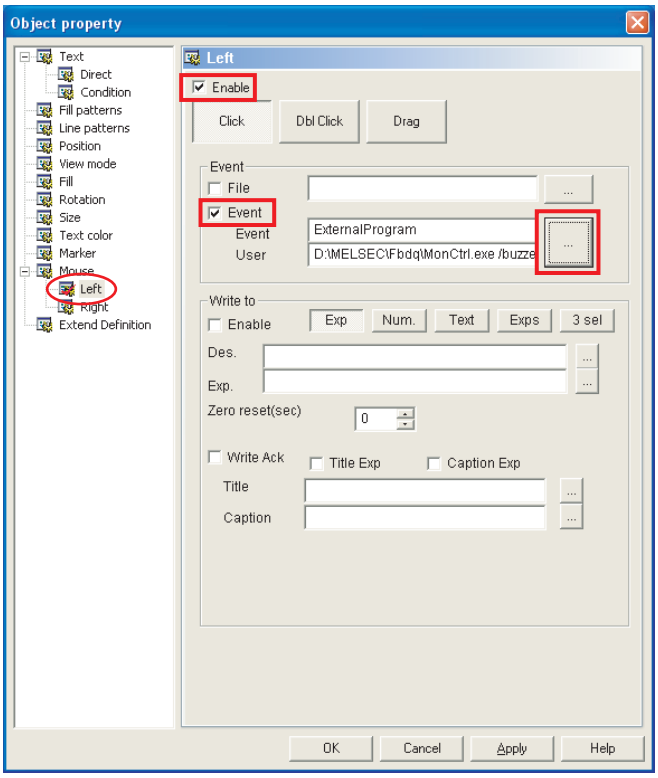
PX Developer monitor tool		Alarm monitor of JoyWatcherSuite		
Event item	Expression	Event item	Maximum number of characters[*1]	Expression
Confirm Check	ON/OFF	No correspondence (State is left blank.)		
Tag	TIC001	EV_TagName	64	"Tag" Example) TIC001
Tag Comment	Tank temperature	EV_TagComment	64	"Tag Comment" Example) Tank temperature
Event Message[*2]	SV	EV_Description[*2]	64	"Event Message" Example) SV
Occurrence Date	The format depends on the setting of OS.	EV_DATE	-	Depends on the setting of date format in the alarm monitor.
Status[*2]	CAS	EV_Mode[*2]	64	"Status" Example) CAS
Set Value[*2]	90.0 ºC	EV_Value[*2]	64	90.0 ºC
User	admin	EV_UserName	64	"User" Example) admin
No correspondence		EV_SID	-	Server ID[*3 *4]
		EV_ID	-	Serial number[*3]

*1: Characters that are exceeded the maximum number of characters are not stored to the database.
*2: The description corresponds to "Tag Data Item Display of Event" on the option setting of the monitor tool is displayed.
*3: EV_SID is an ID to distinguish programs which are inserted to the same table. EV_SID+EV_ID is a unique ID.
*4: EV_SID is the same as "Server ID" on the Security manager screen.

Appendix 4 Calling Monitor Tool Function from JoyWatcherSuite

A buzzer of monitor tool can be stopped or specified screen can be displayed by calling the MonCtrl command (MonCtrl.exe) of the monitor tool from JoyWatcherSuite. The following shows a setting method on JWEdit.

BASIC OPERATION



1. Double-click the object pasted on JWEdit.
2. The Object property dialog box is displayed.
   - Click [Mouse] → [Left] in the tree.
   - Check the "Enable" check box, and check the "Event" check box under Event.
   - Set "ExternalProgram" for Event.
   - Set "MonCtrl.exe" for User. *1

   Click the "OK" button.

*1: For functions that can be specified by the MonCtrl command, refer to "External Control of the Monitor Tool" in "PX Developer Operating Manual (Monitor Tool)".

Appendix 5 Security of Monitor Tool and JoyWatcherSuite

The mixture of the user authority function of the monitor tool and the security function of JoyWatcherSuite enables to set the restrictions for operation of process control tag on the graphic screen and alarm check of JoyWatcherSuite.
For details of the security function of JoyWatcherSuite, refer to "JoyWatcherSuite user's guide".

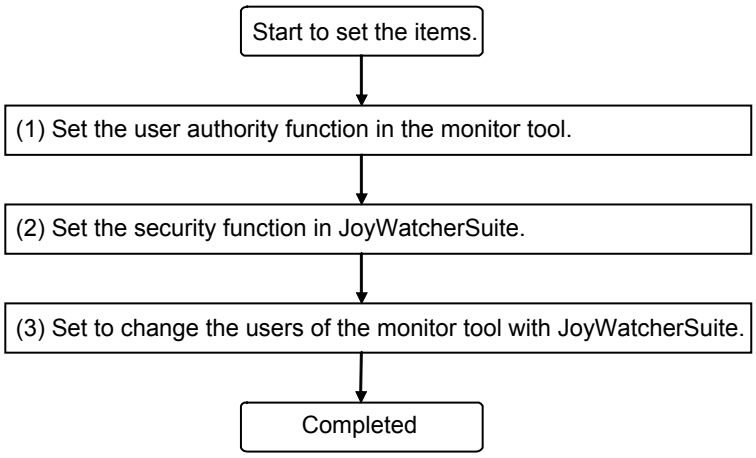
Appendix 5.1 Operating environment for using security of monitor tool and JoyWatcherSuite

The following describes the operating environment for using security of the monitor tool and JoyWatcherSuite.

Application	Version
PX Developer	Version 1.31H or later
JoyWatcherSuite	Version 6.1 or later

Appendix 5.2 Setting procedure for using security of monitor tool and JoyWatcherSuite

The following diagram describes the setting procedure for using the user authority function in the monitor tool and the security function in JoyWatcherSuite.

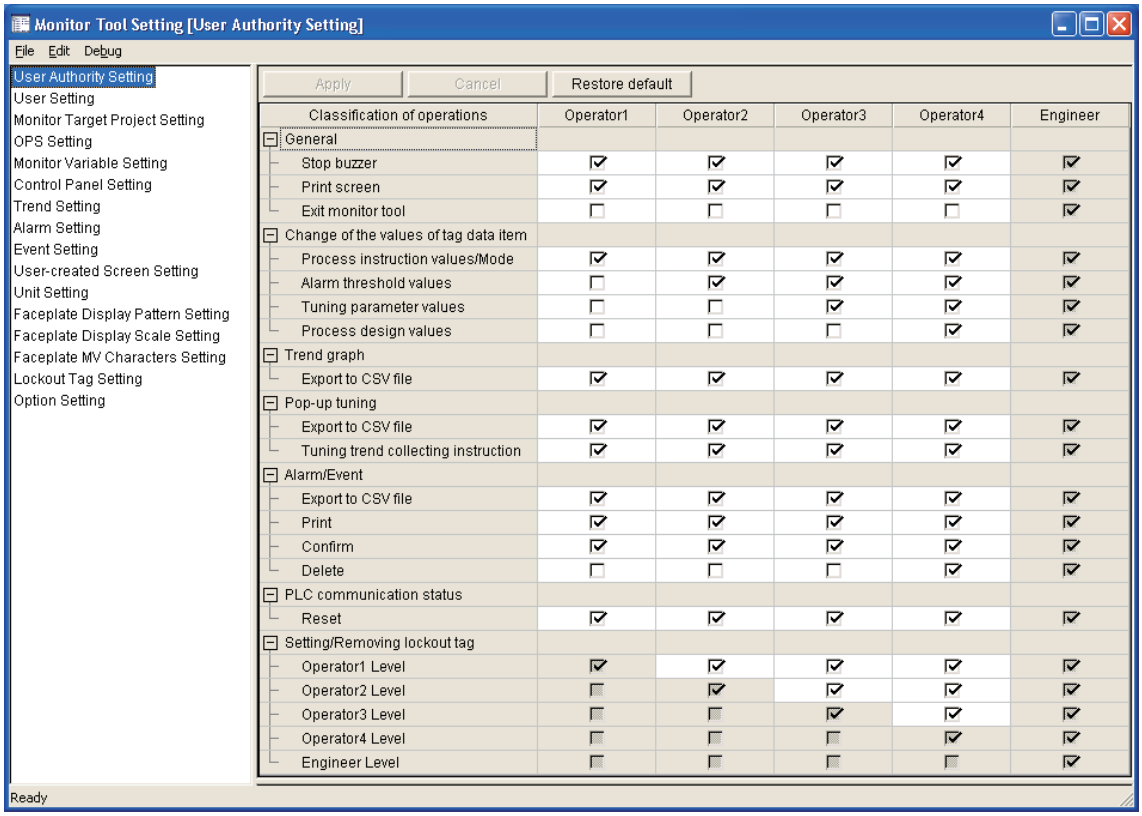


(1) Setting user authority function in monitor tool

Set the following items in the monitor tool.
For details, refer to "PX Developer Operating Manual (Monitor Tool) ".

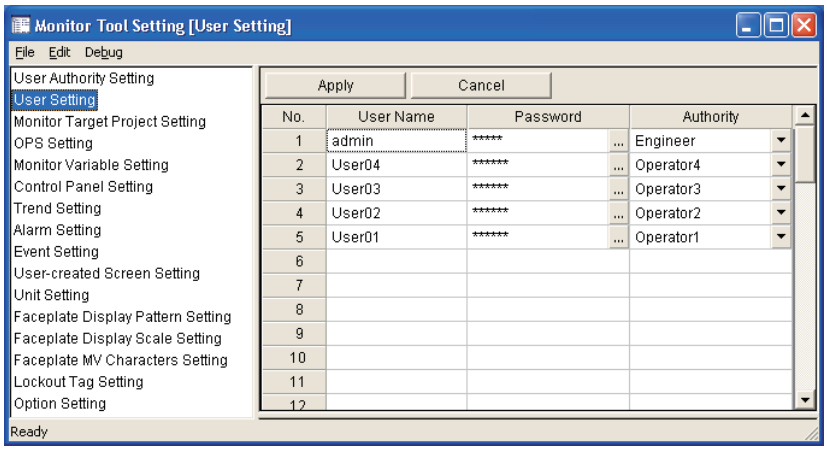
1) User Authority Setting

Set the operation restrictions for each user authority.



2) User Setting

Set a user name, a password, and the authority of users who operate the monitor tool.



(2) Setting security function in JoyWatcherSuite

Set the following items in JoyWatcherSuite.
For details, refer to "JoyWatcherSuite user's guide".

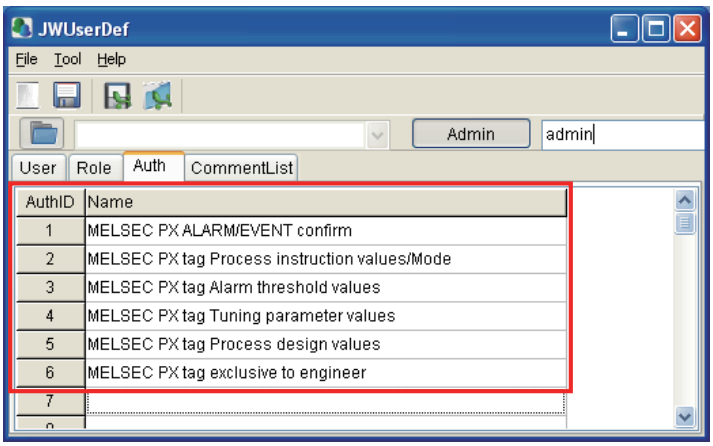
1) User setting

Set a user name, a password, a role, and the authority of users who operate JoyWatcherSuite.
When using the security of the monitor tool and JoyWatcherSuite, set the same user authority description of the monitor tool and that of JoyWatcherSuite.

The following describes an example of "JWUserDef" of JoyWatcherSuite.

1. Set a name of authority ID on the <<Auth>> tab.
   Set the names of item (tag data item change, alarm monitor check) where the security can be set for operations in JoyWatcherSuite.

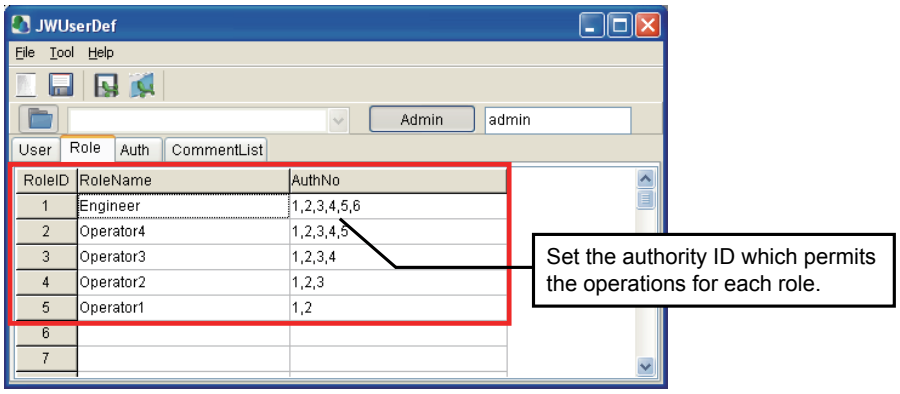
Authority ID	Name
1	MELSEC PX ALARM/EVENT confirm
2	MELSEC PX tag Process instruction values/Mode
3	MELSEC PX tag Alarm threshold values
4	MELSEC PX tag Tuning parameter values
5	MELSEC PX tag Process design values
6	MELSEC PX tag exclusive to engineer



2. Set a role name and an authority number on the <<Role>> tab.
   Set the user authority (Engineer, Operator1 to 4) and the authority ID of the monitor tool.

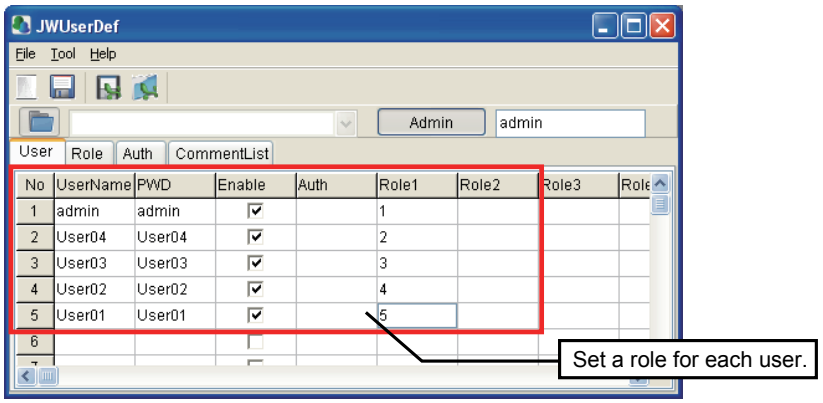
Role ID	Role name	Authority ID					
		1	2	3	4	5	6
1	Engineer	○	○	○	○	○	○
2	Operator4	○	○	○	○	○	×
3	Operator3	○	○	○	○	×	×
4	Operator2	○	○	○	×	×	×
5	Operator1	○	○	×	×	×	×

○: Operation permitted, ×: Operation prohibited



3. Set a user name, a password, and a role on the <<User>> tab.
   Set the same user name, password, and role as the user setting in the monitor tool.

User setting of the monitor tool		User setting of JoyWatcherSuite	
User name	User authority	User name	Role
admin	Engineer	admin	1
User04	Operator4	User04	2
User03	Operator3	User03	3
User02	Operator2	User02	4
User01	Operator1	User01	5



POINT

- The authority which corresponds to the lock mode of the monitor tool is the GUEST mode in JoyWatcherSuite. The GUEST mode is the status of execution of log in operation with the GUEST mode or that of log off operation.
- Set the same user name and password on the user setting of the monitor tool and JoyWatcherSuite.

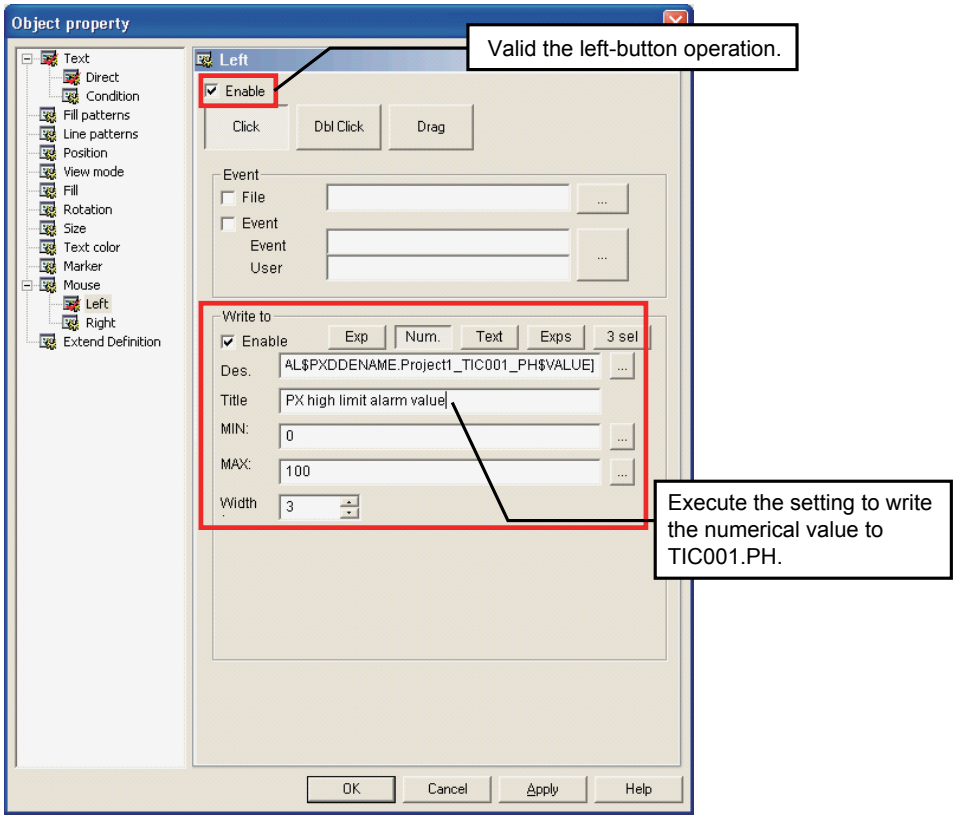
2) JWEdit

As security when writing numerical values to the process control tag items, check the "Enable" check box of Object property, and set the "authority ID" required for operations to control valid/invalid of mouse operation.

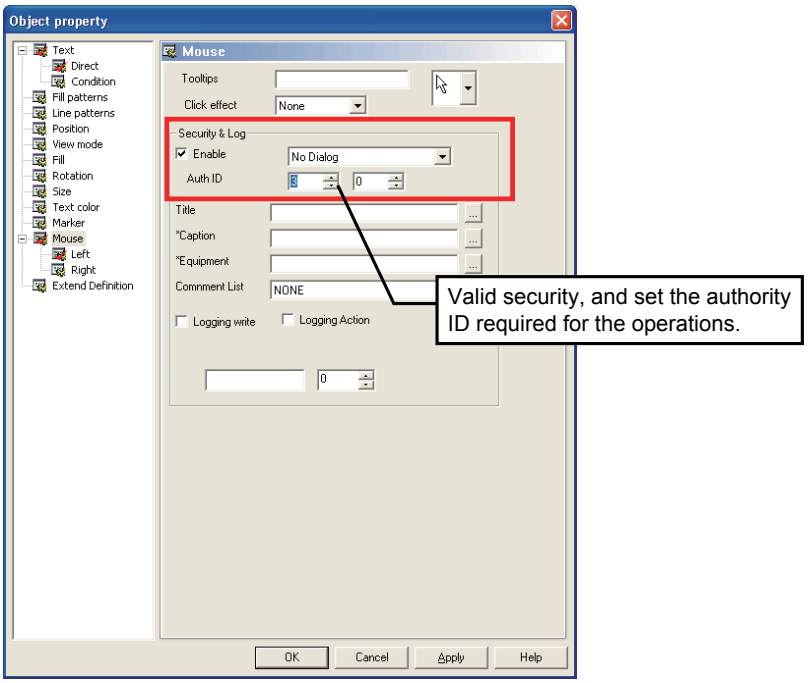
Example) Security when writing numerical values to "TIC001.PH" which is PV high limit alarm value of process control tag TIC001.

Since the operation classification of process control tag "TIC001.PH" is alarm threshold value, only role ID users which have authority ID "3" can execute the operations.
The following diagram describes the setting procedure.

1. Double click the object for writing numerical value, or right-click the context menu, and select [Property].
2. Click [Mouse] → [Left Button] of left tree, and set the numerical value writing to process control tag "TIC001.PH" on [Write to].



3. Click [Mouse] of left tree, select [Security & Log], and set the operation authority ID to process control tag "TIC001.PH".



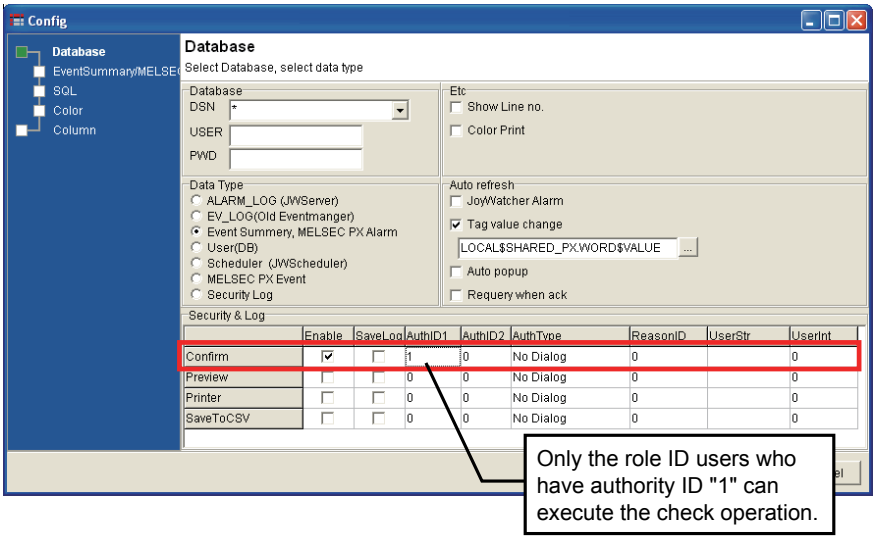
3) Alarm Monitor

Check the check box to valid the authority check of alarm monitor to control the check operation of MELSEC PX ALARM/MELSEC PX Event.

Example) Security when checking the check box to valid the authority check of MELSEC PX ALARM

Set to operate the MELSEC PX ALARM check only for the role ID users who have authority ID "1".
The following is the setting description.

• Setting description under [Config] → [Config].



(3) Setting to change users of monitor tool with JoyWatcherSuite

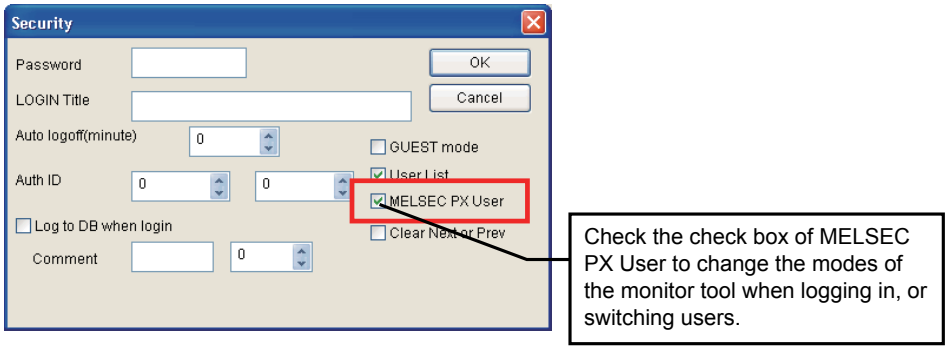
1) JWPanel

For changing the users of the monitor tool with JoyWatcherSuite, check the check box of "MELSEC PX User" on the security setting of JWPanel. This enables to change the modes of the monitor tool automatically when logging in JoyWatcherSuite, or switching users.

Note that the mode to be changed in the monitor tool in this regard is changed to a mode of user who has the same user name and password entered when logging in JoyWatcherSuite or switching users is the same.

When logging in or logging off with the GUEST mode in JoyWatcherSuite, the mode in the monitor tool is changed to the lock mode.

• Setting description under [Security] → [Setting…]



Appendix 5.3 Procedure for monitoring operation with security interaction between monitor tool and JoyWatcherSuite

When monitoring with security interaction between the monitor tool and JoyWatcherSuite, monitor by following the procedure described below.

1) Start the monitor tool and JoyWatcherSuite server with JoyWatcherSuite JWLauncher.
2) Start JoyWatcherSuite JWPanel.
3) Switch the users with JoyWatcherSuite.

POINT

When an error message is displayed with the monitor tool by changing login users with JoyWatcherSuite, log in with the GUEST mode which does not have the authority with JoyWatcherSuite once, or log off, and log in with the operation user again after the problem is solved.

Appendix 6 Functions Added to and Changed from Old Version

The following table indicates the functions added and changed with the upgrade.

Compatible version*1	Added/changed function	Description	Reference
Version 1.42U	Supported OS	Windows® 8 is supported.	Section 2.3

*1: The compatible version can be confirmed in Product Information. For details, refer to the "PX Developer Operating Manual (Programming Tool or Monitor Tool)".

MEMO

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C-1

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SH(NA)-080976ENG-D(1507)KWIX
MODEL:SW1D5C-FBDQ-O-JYWS-E
MODEL CODE: 13JU70

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