

MONITOUCH

Reference Manual [2]



Record of Revisions

Reference numbers are shown at the bottom left corner on the back cover of each manual.

Printing Date	Reference No.	Revised Contents
June, 2014	1066NE0	First edition
April, 2015	1066NE1	Second edition <ul style="list-style-type: none">• Chapter 1 Added video/RGB display• Chapter 4 Added filtering (sorting), searching for the operation log viewer and operation log, LogToCsv• Chapter 6 Data transfer service and changed server example for data transfer service• Chapter 12 Ladder transfer, 3-way communication• Chapter 13 PDF viewer• Chapter 14 String table function• Partial modifications• Revisions for new print

Preface

Thank you for selecting the MONITOUCH V9 series.

For correct setup of the V9 series, you are requested to read through this manual to understand more about the product.

For details on other operating procedures for the V9 series, refer to the following related manuals.

Manual Name	Contents	Reference No.
V9 Series Reference Manual [1]	Explains the functions and operation of the V9 series.	1065NE
V9 Series Reference Manual [2]		1066NE
V9 Series Setup Manual	Explains the installation procedure of V-SFT version 6, the creation process of simple screen programs as well as how to transfer a created screen program using V-SFT version 6.	1067NE
V9 Series Troubleshooting/Maintenance Manual	Provides an error list and explains the operating procedures for the V9 series.	1068NE
V9 Series Training Manual Beginner's Guide	Explains the screen creation process using V-SFT version 6 with examples in detail.	1069NE
V9 Series Training Manual Practical Guide		1070NE
V9 Series Macro Reference	Provides an overview of macros of V-SFT version 6 and explains macro editor operations and macro command descriptions in detail.	1071NE
V9 Series Operation Manual	Explains the configuration of V-SFT version 6, the editing process of each part and limitations regarding operation in detail.	1072NE
V9 Series Connection Manual [1]	Explains the connection and communication parameters for the V9 series and controllers in detail. Included Makers ALLEN BRADLEY, Automationdirect, Azbil, Baumuller, BECKHOFF, CHINO, CIMON, DELTA, DELTA TAU DATA SYSTEMS, EATON Cutler-Hammer, EMERSON, FANUC, FATEK AUTOMATION, FUFENG, Fuji Electric, Gammaflux, GE Fanuc, Hitachi, Hitachi Industrial Equipment Systems	2210NE
V9 Series Connection Manual [2]	Explains the connection and communication parameters for the V9 series and controllers in detail. Included Makers IAI, IDEC, JTEKT, KEYENCE, KOGANEI, KOYO ELECTRONICS, LS, MITSUBISHI ELECTRIC, MODICON, MOELLER, M-SYSTEM, OMRON, Oriental Motor, Panasonic, RKC, RS Automation	2211NE
V9 Series Connection Manual [3]	Explains the connection and communication parameters for the V9 series and controllers in detail. Included Makers SAIA, SAMSUNG, SanRex, SANMEI, SHARP, SHIMADEN, SHINKO TECHNOS, Siemens, SINFONIA TECHNOLOGY, TECO, Telemecanique, TOHO, TOSHIBA, TOSHIBA MACHINE, TURCK, UNIPULSE, UNITRONICS, VIGOR, WAGO, XINJE, YAMAHA, Yaskawa Electric, Yokogawa Electric, MODBUS, Barcode Reader, Slave Communication Function, Universal Serial Communication	2212NE
V9 Series Hardware Specifications	Explains hardware specifications and precautions when handling the V9 series.	2023NE

For details on devices including PLCs, inverters, and temperature controllers, refer to the manual for each device.

Notes:

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2. The information in this manual is subject to change without prior notice.
3. Windows and Excel are registered trademarks of Microsoft Corporation in the United States and other countries.
4. All other company names or product names are trademarks or registered trademarks of their respective holders.
5. This manual is intended to give accurate information about MONITOUCH hardware. If you have any questions, please contact your local distributor.

Notes on Safe Usage of MONITOUCH

In this manual, you will find various notes categorized under the following levels with the signal words "DANGER" and "CAUTION".

 **DANGER** Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

 **CAUTION** Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury and could cause property damage.

Note that there is a possibility that items listed with  **CAUTION** may have serious ramifications.

DANGER

- Never use the output signal of the V9 series for operations that may threaten human life or damage the system, such as signals used in case of emergency. Please design the system so that it can cope with a touch switch malfunction. A touch switch malfunction may result in machine accidents or damage.
- Turn off the power supply when you set up the unit, connect new cables, or perform maintenance or inspections. Otherwise, electrical shock or damage may occur.
- Never touch any terminals while the power is on. Otherwise, electrical shock may occur.
- You must cover the terminals on the unit before turning the power on and operating the unit. Otherwise, electrical shock may occur.
- The liquid crystal in the LCD panel is a hazardous substance. If the LCD panel is damaged, do not ingest the leaked liquid crystal. If leaked liquid crystal makes contact with skin or clothing, wash it away with soap and water.
- Never disassemble, recharge, deform by pressure, short-circuit, reverse the polarity of the lithium battery, nor dispose of the lithium battery in fire. Failure to follow these conditions will lead to explosion or ignition.
- Never use a lithium battery that is deformed, leaking, or shows any other signs of abnormality. Failure to follow these conditions will lead to explosion or ignition.
- Switches on the screen are operable even when the screen has become dark due to a faulty backlight or when the backlight has reached the end of its service life. If the screen is dark and hard to see, do not touch the screen. Otherwise, a malfunction may occur resulting in machine accidents or damage.

CAUTION

- Check the appearance of the unit when it is unpacked. Do not use the unit if any damage or deformation is found. Failure to do so may lead to fire, damage, or malfunction.
- For use in a facility or as part of a system related to nuclear energy, aerospace, medical, traffic equipment, or mobile installations, please consult your local distributor.
- Operate (or store) the V9 series under the conditions indicated in this manual and related manuals. Failure to do so could cause fire, malfunction, physical damage, or deterioration.
- Observe the following environmental restrictions on use and storage of the unit. Otherwise, fire or damage to the unit may result.
 - Avoid locations where there is a possibility that water, corrosive gas, flammable gas, solvents, grinding fluids, or cutting oil can come into contact with the unit.
 - Avoid high temperatures, high humidity, and outside weather conditions, such as wind, rain, or direct sunlight.
 - Avoid locations where excessive dust, salt, and metallic particles are present.
 - Avoid installing the unit in a location where vibrations or physical shocks may be transmitted.
- Equipment must be correctly mounted so that the main terminal of the V9 series will not be touched inadvertently. Otherwise, an accident or electric shock may occur.
- Tighten the mounting screw on the fixtures of the V9 series to an equal torque of 0.6 N·m. Excessive tightening may distort the panel surface. Loose mounting screws may cause the unit to fall down, malfunction, or short-circuit.
- Check periodically that terminal screws on the power supply terminal block and fixtures are firmly tightened. Loosened screws or nuts may result in fire or malfunction.
- Tighten the terminal screws on the power supply terminal block of the V9 series to an equal torque of 7.1 to 8.8 inch-lbf (0.8 to 1.0 N·m). Improper tightening of screws may result in fire, malfunction, or other serious trouble.
- The V9 series has a glass screen. Do not drop the unit or impart physical shocks to the unit. Otherwise, the screen may be damaged.
- Correctly connect cables to the terminals of the V9 series in accordance with the specified voltage and wattage. Overvoltage, overwattage, or incorrect cable connection could cause fire, malfunction, or damage to the unit.
- Always ground the V9 series. The FG terminal must be used exclusively for the V9 series with the level of grounding resistance less than 100 Ω. Otherwise, electric shock or a fire may occur.
- Prevent any conductive particles from entering the V9 series. Failure to do so may lead to fire, damage, or malfunction.
- After wiring is finished, remove the paper used as a dust cover before starting operation of the V9 series. Operation with the dust cover attached may result in accidents, fire, malfunction, or other trouble.

 **CAUTION**

- Do not attempt to repair the V9 series yourself. Contact Hakko Electronics or the designated contractor for repairs.
- Do not repair, disassemble, or modify the V9 series. Hakko Electronics Co., Ltd. is not responsible for any damages resulting from repair, disassembly, or modification of the unit that was performed by an unauthorized person.
- Do not use sharp-pointed tools to press touch switches. Doing so may damage the display unit.
- Only experts are authorized to set up the unit, connect cables, and perform maintenance and inspection.
- Lithium batteries contain combustible material such as lithium and organic solvents. Mishandling may cause heat, explosion, or ignition resulting in fire or injury. Read the related manuals carefully and correctly handle the lithium battery as instructed.
- Take safety precautions during operations such as changing settings when the unit is running, forced output, and starting and stopping the unit. Any misoperations may cause unexpected machine movement, resulting in machine accidents or damage.
- In facilities where the failure of the V9 series could lead to accidents that threaten human life or other serious damage, be sure that such facilities are equipped with adequate safeguards.
- When disposing of the V9 series, it must be treated as industrial waste.
- Before touching the V9 series, discharge static electricity from your body by touching grounded metal. Excessive static electricity may cause malfunction or trouble.
- Insert an SD card into MONITOUCH in the same orientation as pictured on the unit. Failure to do so may damage the SD card or the slot on the unit.
- The SD card access LED flashes red when the SD card is being accessed. Never remove the SD card or turn off power to the unit while the LED is flashing. Doing so may destroy the data on the SD card. Check that the LED has turned off before removing the SD card or turning off the power to the unit.
- Be sure to remove the protective sheet that is attached to the touch panel surface at delivery before use. If used with the protective sheet attached, MONITOUCH may not recognize touch operations or malfunctions may occur.
- When using an analog resistive-film type V9 series unit, do not touch two positions on the screen at the same time. If two or more positions are pressed at the same time, the switch located between the pressed positions may be activated.
- When using a capacitive V9 series unit, take note of the following cautions.
 - Use a Class 2 power supply for a 24-VDC unit. If an unstable power supply is used, MONITOUCH may not recognize touch operations or malfunctions may occur.
 - Capacitive touch panel types support two-point touch operations. If a third point is touched, the touch operation will be cancelled.
 - Capacitive touch panel types are prone to the influence of conductive material. Do not place conductive material such as metals near the touch panel surface and do not use the panel if it is wet. Otherwise, malfunctions may occur.

[General Notes]

- Never bundle control cables or input/output cables with high-voltage and large-current carrying cables such as power supply cables. Keep control cables and input/output cables at least 200 mm away from high-voltage and large-current carrying cables. Otherwise, malfunction may occur due to noise.
- When using the V9 series in an environment where a source of high-frequency noise is present, it is recommended that the FG shielded cable (communication cable) be grounded at each end. However, when communication is unstable, select between grounding one or both ends, as permitted by the usage environment.
- Be sure to plug connectors and sockets of the V9 series in the correct orientation. Failure to do so may lead to damage or malfunction.
- If a LAN cable is inserted into the MJ1 or MJ2 connector, the device on the other end may be damaged. Check the connector names on the unit and insert cables into the correct connectors.
- Do not use thinners for cleaning because it may discolor the V9 series surface. Use commercially available alcohol.
- If a data receive error occurs when the V9 series unit and a counterpart unit (PLC, temperature controller, etc.) are started at the same time, read the manual of the counterpart unit to correctly resolve the error.
- Avoid discharging static electricity on the mounting panel of the V9 series. Static charge can damage the unit and cause malfunctions. Discharging static electricity on the mounting panel may cause malfunction to occur due to noise.
- Avoid prolonged display of any fixed pattern. Due to the characteristic of liquid crystal displays, an afterimage may occur. If prolonged display of a fixed pattern is expected, use the backlight's auto OFF function.
- The V9 series is identified as a class-A product in industrial environments. In the case of use in a domestic environment, the unit is likely to cause electromagnetic interference. Preventive measures should thereby be taken appropriately.

[Notes on the LCD]

Note that the following conditions may occur under normal circumstances.

- The response time, brightness, and colors of the V9 series may be affected by the ambient temperature.
- Tiny spots (dark or luminescent) may appear on the display due to the characteristics of liquid crystal.
- There are variations in brightness and color between units.

[Notes on Capacitive Touch Panels]

- Touch panel operability may not be optimal if used with dry fingers or skin. In such a case, use a capacitive stylus pen.
- Periodically clean the touch panel surface for optimum touch operations.

When cleaning, take note of the following points.

<When cleaning>

- The panel surface is made of glass. Be sure to clean the surface gently with a cloth or sponge. Otherwise, you may scratch or damage the glass.
- Take care not to let cleaning detergent seep into the touch panel unit.
Do not directly apply or spray cleaning detergent on the panel surface.

[Notes on Wireless LAN]

For details regarding supported wireless LAN standards, radio law certifications, and countries where wireless LAN can be used, refer to the "V9 Series About Wireless LAN" manual and the "V9 Series Hardware Specifications" manual provided with the V9 series unit at delivery.

Contents

1 Image Display

1.1 Video/RGB Display

1.1.1	Overview	1-1
	Video Display.....	1-1
	RGB Input Display.....	1-1
	Snapshot Function.....	1-2
	JPEG Display.....	1-2
	Operation by Double-tapping.....	1-3
1.1.2	Specifications	1-4
1.1.3	Detailed Settings	1-6
1.1.4	Video Display	1-12
1.1.5	RGB Input Signal Display	1-13
1.1.6	Macro Commands	1-19
1.1.7	System Device Memory (\$s)	1-22
1.1.8	Video Overlap Displays	1-23
1.1.9	Notes	1-27

1.2 JPEG Display

1.2.1	Overview	1-28
	JPEG File Display.....	1-28
	Network Camera Image Display	1-28
1.2.2	Detailed Settings	1-29
1.2.3	JPEG File Location	1-33

1.3 Network Camera

1.3.1	Overview	1-34
1.3.2	System Requirements	1-35
1.3.3	Required Settings	1-35
1.3.4	Detailed Settings	1-36
1.3.5	AXIS Settings (Example: AXIS 214PTZ)	1-40
1.3.6	Panasonic (Example: BB-HCM580)	1-45
1.3.7	BANNER (Example: PresencePLUS P4 OMNI)	1-55
1.3.8	Restrictions	1-60

2 Sound

2.1 Overview

2.1.1	Before Use	2-1
	Applicable Models.....	2-1
	Preparation.....	2-1
2.1.2	Overview	2-2

2.2 Playing Audio Using Sound Parts

2.2.1	Setting Examples	2-3
2.2.2	Conceptual Operation	2-3

2.3 Detailed Settings

2.3.1	Sound Part	2-4
	File Select	2-4
	Play.....	2-5
	Detail.....	2-5
2.3.2	Alarm Server	2-6
2.3.3	Storage Settings	2-6

2.4	Notes	
2.4.1	Audio File Playback Priority	2-7
	Order of File Playback According to Audio Item	2-7
	Order of File Playback According to Part Type.....	2-7
2.4.2	Audio Files	2-7
	File Format	2-7
	Locations for Storing Audio Files	2-8

2.5 System Device Memory

3 Scheduler

3.1	Overview	
3.1.1	Scheduler	3-1
3.1.2	Operation Specifications	3-2
3.2	Setting Example	
3.2.1	Trigger Settings	3-3
	Specification Method: Direct	3-3
	Designation: Device.....	3-7
3.2.2	Operation Settings	3-8
3.3	Detailed Settings	
3.4	Example of Date and Time Specification by Device Memory (Designation: Device)	
3.5	System Device Memory (\$s)	
3.6	Notes	

4 Operation Log

4.1	Overview	
4.1.1	Operation Log	4-1
	Operation Overview	4-1
	Operation Log Viewer.....	4-1
	Log Storage	4-2
4.2	Using the Operation Log Viewer	
4.2.1	Conceptual Operation	4-3
4.2.2	Setting Procedure	4-3
	Configuring the Operation Log	4-3
	Operation Log Viewer Settings.....	4-4
4.2.3	Operating Procedure	4-4
	Displaying the Operation Log Viewer	4-4
	Settings Menu.....	4-4
4.3	Applicable Items	
4.3.1	Applicable Items and Saving	4-5
	Applicable Items and Timing of Saving	4-5
	Saved Items (Titles).....	4-6
4.4	Detailed Settings	
	Operation Log Settings.....	4-10
4.5	Operation Log Viewer	
4.5.1	Display Method	4-11
4.5.2	Function	4-12
	Showing/Hiding Items.....	4-12
	Changing Order of Display.....	4-13
	Filter	4-14
	Search	4-14

	Changing Between Log Files	4-15
4.5.3	Note	4-15
	Display Priority	4-15
	Language of the Operation Log Viewer	4-15
4.6	Log Data	
4.6.1	Output Timing	4-16
	Output to SRAM	4-16
	Output to SD Card	4-16
4.6.2	Details of Output (File Type)	4-16
	Output to SRAM	4-16
	Output to SD Card	4-16
4.6.3	Importing Log Data to Computer (Conversion to CSV Files)	4-17
	File Conversion Procedure	4-17
4.7	System Device Memory	
5	Security	
5.1	Overview	
	Security	5-1
	Screen Security Levels	5-1
	Item Security Levels	5-2
	User ID and Password Registration	5-3
	Login/Logout	5-3
5.2	Security Settings	
5.3	Security Level Settings	
5.4	Login/Logout	
	Location of Settings	5-10
5.5	System Device Memory (\$s)	
6	Ethernet Communication Function	
6.1	Preface	
6.1.1	List of Functions	6-1
6.2	V9 Series Unit IP Address Settings	
6.2.1	Setting Using the V-SFT Editor	6-2
6.2.2	Setting Using Local Mode on the Unit	6-3
6.2.3	Ethernet Terminology	6-5
6.3	Screen Program Transfer	
6.3.1	Transfer Procedure	6-7
6.4	PLC Communication	
6.5	Transferring Data Between V9 Series Units (Macro)	
6.6	DLL Communication	
6.7	MES Interface Function	
6.7.1	Overview	6-10
6.7.2	System Configuration	6-12
6.7.3	V9 Series Unit Settings	6-13
6.7.4	V-Server	6-23
6.7.5	Database	6-24
6.7.6	Data Source (ODBC) Settings	6-36

6.8	E-mail Notification	
6.8.1	Overview	6-41
6.8.2	Detailed Settings	6-42
6.8.3	System Device Memory (\$s)	6-46
6.9	FTP server	
6.9.1	Overview	6-47
6.9.2	Specifications	6-47
6.9.3	Detailed Settings	6-49
6.9.4	Specifying File Paths	6-49
6.9.5	Login	6-50
6.9.6	Log Out	6-53
6.9.7	Operation Examples	6-54
6.9.8	Error Display	6-57
6.9.9	Checking the Connection	6-58
6.9.10	Restrictions	6-60
6.9.11	Notes	6-60
6.10	VNC Server	
6.10.1	Overview	6-61
6.10.2	Specifications	6-62
6.10.3	Setting Procedure	6-62
6.10.4	V9 Series Unit Settings and Operation	6-63
6.10.5	VNC Client Settings/Operations	6-66
6.11	Data Transfer Service	
6.11.1	Overview	6-70
6.11.2	Specifications	6-70
6.11.3	Setting Example 1: When Server is a PC	6-71
	File-based Transfer	6-71
	Folder-based Transfer	6-73
6.11.4	Setting Example 2: When Server is a V9 Unit	6-75
6.11.5	Detailed Settings	6-77
6.11.6	FTP Server Settings	6-82
	Server: Computer etc.	6-82
	Server: V9 Series Unit.....	6-86
6.11.7	Checking the Transfer Status	6-87
6.11.8	Limitations	6-88

7 Convenient Functions

7.1	Enlarging and Scrolling Screens	
7.1.1	Overview	7-1
	Enlarging the Screen Size.....	7-1
	Enlarged Display	7-1
7.1.2	Setting Example	7-2
	Enlarging the Screen Size.....	7-2
	Enlarged Display	7-3
7.1.3	Detailed Settings	7-4
	Screen	7-4
	Overlap.....	7-6
7.1.4	Notes	7-7
7.2	Splash Screen	
7.2.1	Overview	7-8
7.2.2	Setting Example	7-9
7.2.3	Detailed Settings	7-10
7.2.4	Notes	7-11

8 Storage Device

8.1 Overview

8.1.1	Connections	8-1
8.1.2	Storage Device Specifications	8-1

8.2 Access Folders

8.2.1	Access Folders	8-2
8.2.2	Storage Device Settings	8-3
8.2.3	Folder Configuration	8-4

8.3 Function Descriptions

8.3.1	List of Functions	8-6
8.3.2	Screen Program Transfer	8-7
8.3.3	Automatically Uploading Screen Programs	8-9
8.3.4	Manually Updating the Operating System	8-11
8.3.5	Automatically Updating the Operating System	8-15
8.3.6	Reducing Screen Program Data Size	8-19
8.3.7	Storing Messages (TXT Files)	8-21
8.3.8	Storing Audio (WAV) Files	8-22
8.3.9	Storing JPEG Files	8-23
8.3.10	Storing PDF Files	8-24
8.3.11	Transferring Recipe Data	8-25
8.3.12	Saving Alarm History	8-25
8.3.13	Saving Logging Data	8-25
8.3.14	Operation Logs	8-26
8.3.15	Saving Screenshot Images	8-26
8.3.16	Saving Network Camera Images	8-26
8.3.17	PDF Output of Data Sheets	8-27
8.3.18	Saving Memo Pad Data	8-27
8.3.19	SRAM Data Backup	8-27

8.4 Storage Manager

8.4.1	Starting and Ending	8-28
8.4.2	Writing	8-29
8.4.3	BIN Files	8-30
8.4.4	Storage Copy	8-32
8.4.5	Storage Device Backup	8-33

8.5 System Device Memory (\$s)

9 Language Changeover

9.1 Overview

9.1.1	Fonts	9-1
9.1.2	Font Types	9-2
	Supported Language List.....	9-3
	Checking Fonts on MONITOUCH.....	9-4
9.1.3	Language Selection	9-5

9.2 Setting Procedure

9.2.1	Font Setting	9-6
9.2.2	Language Editing	9-7
	A. Directly Edit Items	9-7
	B. Editing in the [Multi-language Edit] Window.....	9-8
	C. Export / Import.....	9-9
9.2.3	Language Selection	9-13
	Switch Function	9-13
	SYS (CHG_LANG) Macro Command	9-14

9.3	Detailed Settings	
9.3.1	Font Setting	9-15
9.3.2	Transfer Font Setting	9-16
9.3.3	Import and Export	9-17
9.4	Convenient Editing Procedures	
9.4.1	Multi-language Batch Change	9-18
	Overview	9-18
	Setting Example	9-18
9.4.2	Multi-language Batch Copy	9-19
	Overview	9-19
	Setting Example	9-19
9.4.3	Multi-language Reordering	9-20
	Overview	9-20
	Setting Example	9-20

10 Tag

10.1	Overview	
10.1.1	Tag Types	10-1
	Device Designation.....	10-1
	Variable Designation.....	10-1
	Array Designation.....	10-2
10.1.2	Importing Tags	10-2
10.2	Editing Tags	
10.2.1	Direct Registration in the [Tag Database Edit] Window	10-3
10.2.2	Editing in a CSV File	10-4
	CSV File Configuration	10-5
10.2.3	Configuring Arrays	10-6
10.2.4	Importing Tags	10-6
10.3	Detailed Settings	
	[Tag Database Edit] Window	10-7
10.4	Tag Status List	
10.5	Importing Tags	
	Manufacturers of supported PLCs	10-9
	MITSUBISHI ELECTRIC.....	10-9
	Siemens	10-13
10.6	Notes	
	Tag Settings.....	10-18
	"Tag" Variable Capacity.....	10-18

11 Device Memory Map

11.1	Overview	
11.2	Editing Device Memory Maps	
11.2.1	Starting	11-3
11.2.2	Quitting	11-3
11.2.3	Comment Settings	11-3
11.2.4	Editing the Device Memory Map	11-4
11.2.5	Permitting Interruption	11-6
11.3	Periodical Reading	
11.4	Synchronized Reading	
11.5	Periodical Writing	

- 11.6 Synchronized Writing
- 11.7 Control Device
- 11.8 TBL_READ/TBL_WRITE
- 11.9 System Device Memory

12 Ladder Transfer

12.1	Overview	
12.1.1	Operating Environment	12-2
12.2	LadderComOp Ver. 2	
12.2.1	LadderComOp Installation	12-4
	Acquiring the LadderComOp Software.....	12-4
12.2.2	LadderComOp Ver. 2 Detailed Settings	12-7
12.3	Ladder Transfer via USB	
12.3.1	Setting Procedure	12-8
12.4	Ladder Transfer via Ethernet	
12.4.1	Setting Procedure	12-13
12.5	Serial Ladder Transfer	
12.5.1	Setting Procedure	12-19
12.6	Notes	
	Screen Program Transfer	12-24
	Other Notes	12-24

13 PDF Viewer

13.1	Overview	
13.2	Preparation of PDF Files	
13.3	Setting Example	
13.3.1	Displaying from the System Menu	13-4
13.3.2	Displaying by Commanding from PLC	13-5
13.4	Detailed Settings	
13.5	Operating the PDF Viewer	
13.5.1	Displaying from the System Menu	13-7
13.5.2	Changing PDF Files to Display	13-7
13.5.3	Changing the Display Page	13-8
13.5.4	Display Scale	13-8
13.5.5	Search Function	13-9

14 String Table Function

14.1	Overview	
14.2	Registration Method	
14.2.1	Registration from String Table	14-2
14.2.2	Direct Registration from Parts and Items	14-4
14.3	Changing Strings	
14.3.1	Changing from String Table	14-6
14.3.2	Changing from Parts and Items	14-7
14.4	Editing the String Table	

14.5 Multi-language Configuration

14.6 Notes

1 Image Display

1.1 Video/RGB Display

1.2 JPEG Display

1.3 Network Camera

1.1 Video/RGB Display

1.1.1 Overview

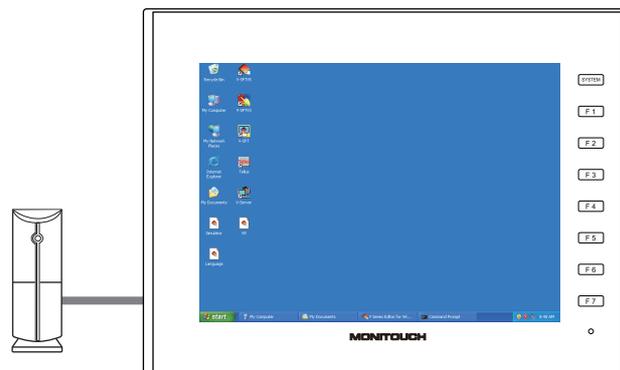
Video Display

- NTSC, NTSC Square Pixel and PAL signal images are displayed.
By using the optional GUR-04 unit, you can show a video screen by simply placing and setting a video/RGB display part.



RGB Input Display

- RGB input signal images are displayed.
By using the optional GUR-01 unit, you can show an RGB screen by simply placing and setting a video/RGB display part.



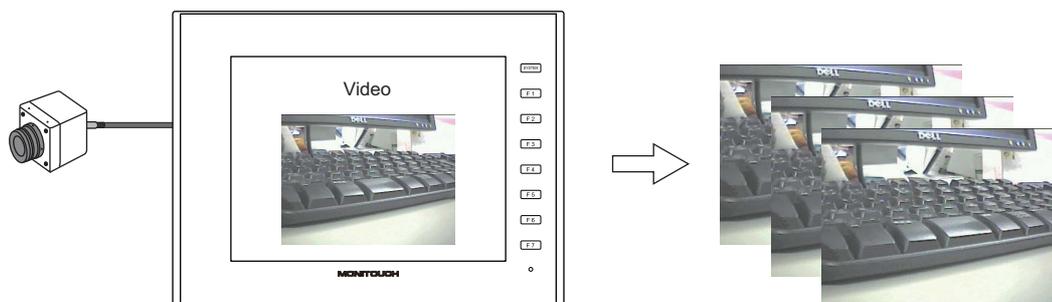
Snapshot Function

The currently displayed video/RGB screen can be saved to a storage device as a JPEG file. Double-tap on the displayed video/RGB screen or execute a snapshot macro command. There are three snapshot types.

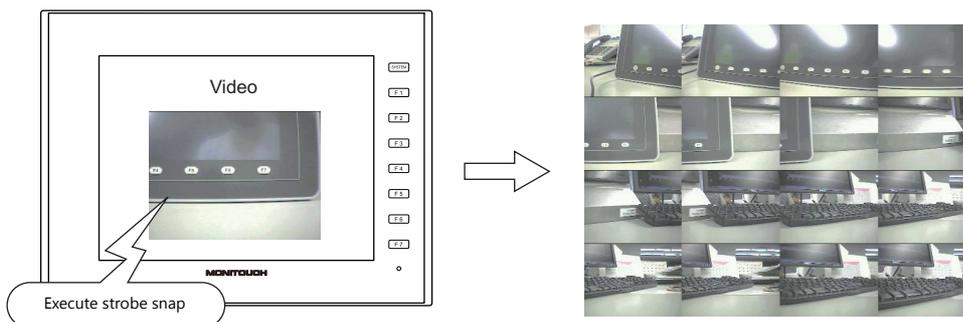
- Single Snap
One snapshot of the currently displayed video/RGB image is taken.
Execute the background SNAP macro command to take a snapshot even when the video/RGB screen is not displayed. For details, refer to the V9 Series Macro Reference Manual.



- Periodical Snap
The currently displayed video/RGB image is captured continuously at regular intervals.



- Strobe Snap
A total of 16 screenshots of the currently displayed video/RGB screen are taken in succession by continuous shooting.

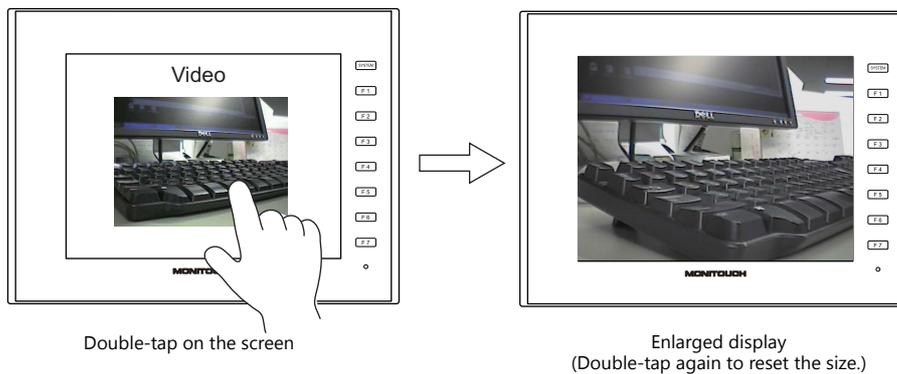


JPEG Display

- Snapshot images saved to a storage device can be displayed on the screen using a JPEG display item.
 For details, refer to ["1.2 JPEG Display" page 1-28](#).

Operation by Double-tapping

- The operation that is performed when the displayed video image is tapped can be set.



1.1.2 Specifications

Applicable Models

Model	Optional Unit	Video Input	RGB Input
V9101iWRLD V9101iWLD V9150iX V9150iXD V9120iS V9120iSD V9100iS V9100iSD V9080iSD	GUR-01	-	1CH
	GUR-04	1CH	-

Video/RGB Input Specifications

Item	Specifications	
	Video Input	RGB Input
Type	Composite video signal	Analog RGB
Input Signal	NTSC NTSC Square Pixel PAL	Analog, straight polarity 0.5 V to 1.0 Vp-p (75 Ω terminating resistance)
Operation Mode	NTSC ITU-R BT. 601 NTSC Square Pixel PAL ITU-R BT. 601	-
Sampling Frequency	13.5 MHz	-
Display Size	(Refer to the following "Display Size" section.)	
Colors	16,777,216 colors 256 gray scales	65,536 colors 64 gray scales
External Connection	BNC co-axial connector	D-sub 15-pin (mini)

Display Size

Video and RGB images are displayed on a placed display area. However, the displayed image may vary depending on the input signal size, the size that can be displayed on the V9 series unit, and the size of the display area placed on the screen.

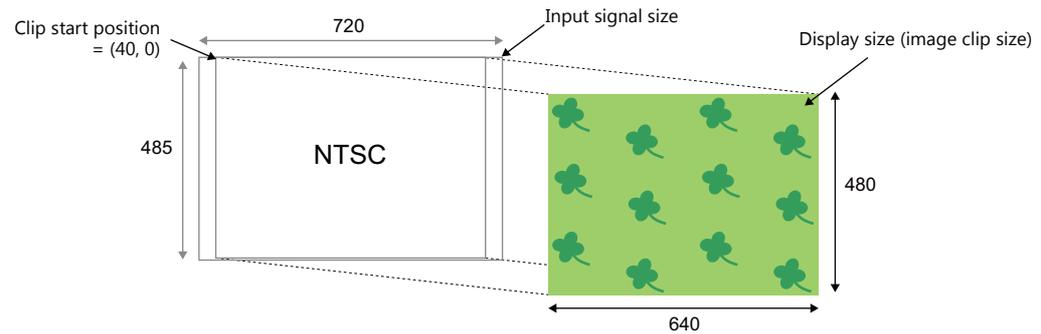
Display sizes

Input Signal	Input Signal Size		Display Size (= image clip size)	Clip Start Position *	
Video	NTSC ITU-R BT. 601	720 × 485	640 × 480	(40, 0)	
	NTSC Square Pixel	640 × 485	640 × 480	(0, 0)	
	PAL TU-R BT. 601	720 × 578	720 × 578	(0, 0)	
RGB Input	VESA	640 × 480	60 Hz	640 × 480	(0, 0)
			72 Hz		
			75 Hz		
			85 Hz		
	800 × 600	800 × 600	56 Hz	800 × 600	(0, 0)
			60 Hz		
			72 Hz		
			75 Hz		
	1024 × 768	1024 × 768	60 Hz	1024 × 768	(0, 0)
			85 Hz		

* If the display size is smaller than the input signal size, the area that is to be displayed on the V9 series unit can be adjusted by adjusting the image clip start position on the V9 series unit. For details, refer to "Clip start position" page 1-5.

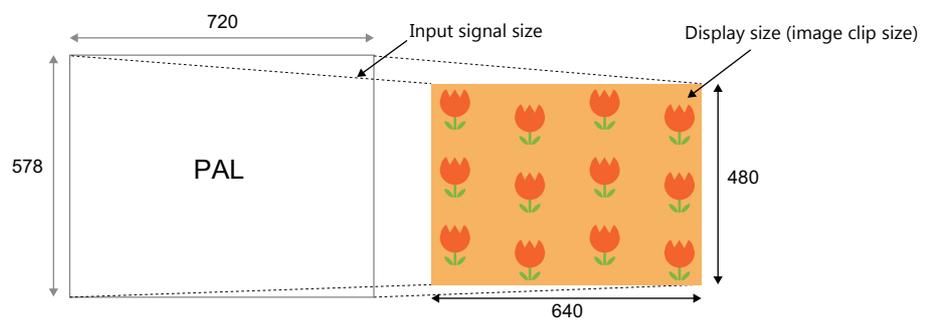
- NTSC ITU-R BT. 601

An image clipped to the display size from the input signal size is displayed. Therefore, the captured image is smaller than the actual video image. The start position for capturing (the clip start position) can be adjusted.



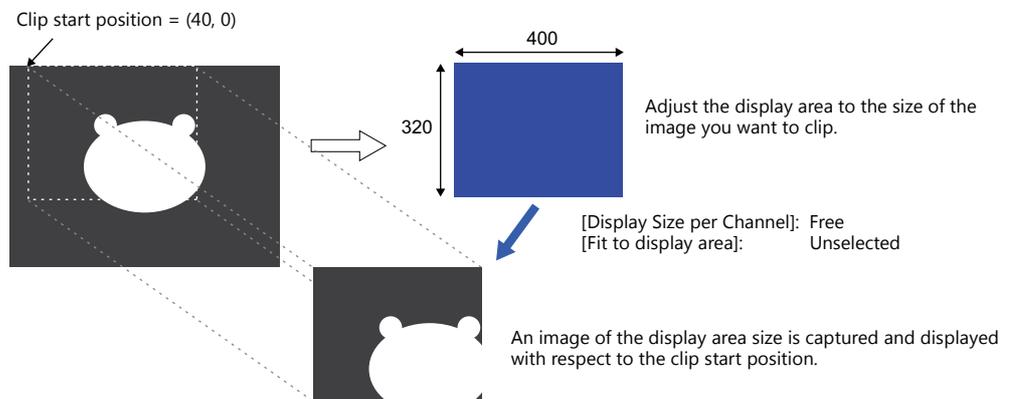
- PAL ITU-R BT. 601

The input signal image is scaled down to fit the display size and displayed.

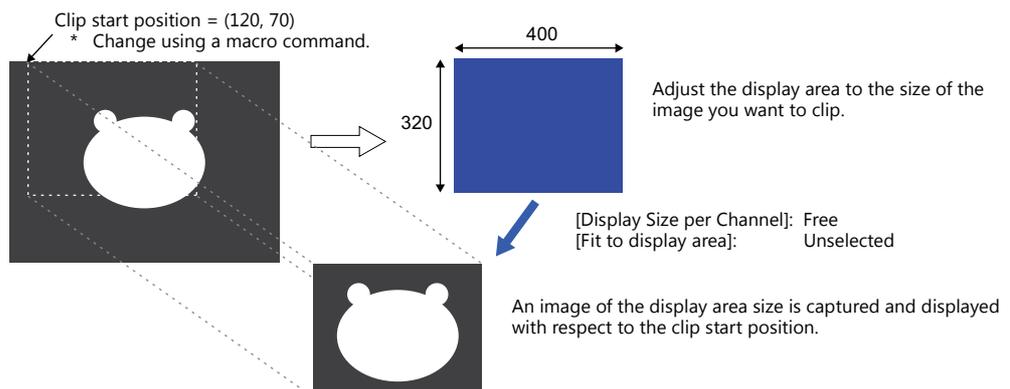


Clip start position

If the image is displayed at the default clip start position when the display area is smaller than the display size, the image may not fit within the display area or may not be centered.

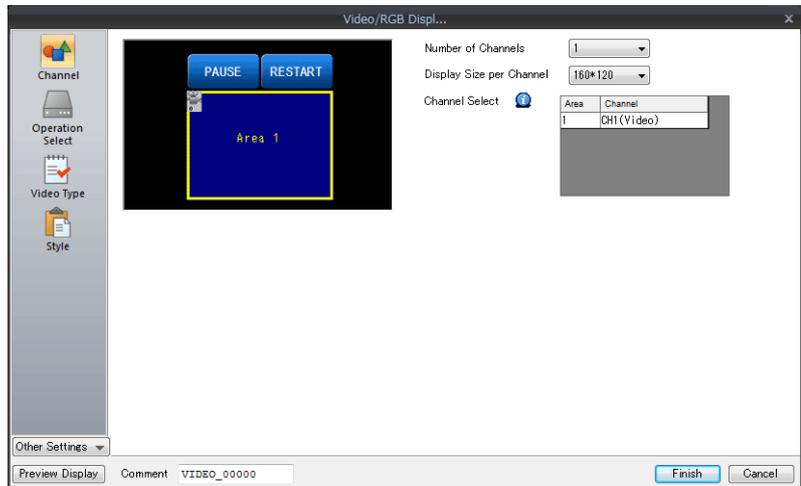


To show a certain portion of the video/RGB image in the display area (at the clip size), change the default clip start position and adjust the size of the display area part. Use the "CLIP_POS" macro command to adjust the clip start position.



1.1.3 Detailed Settings

Channel

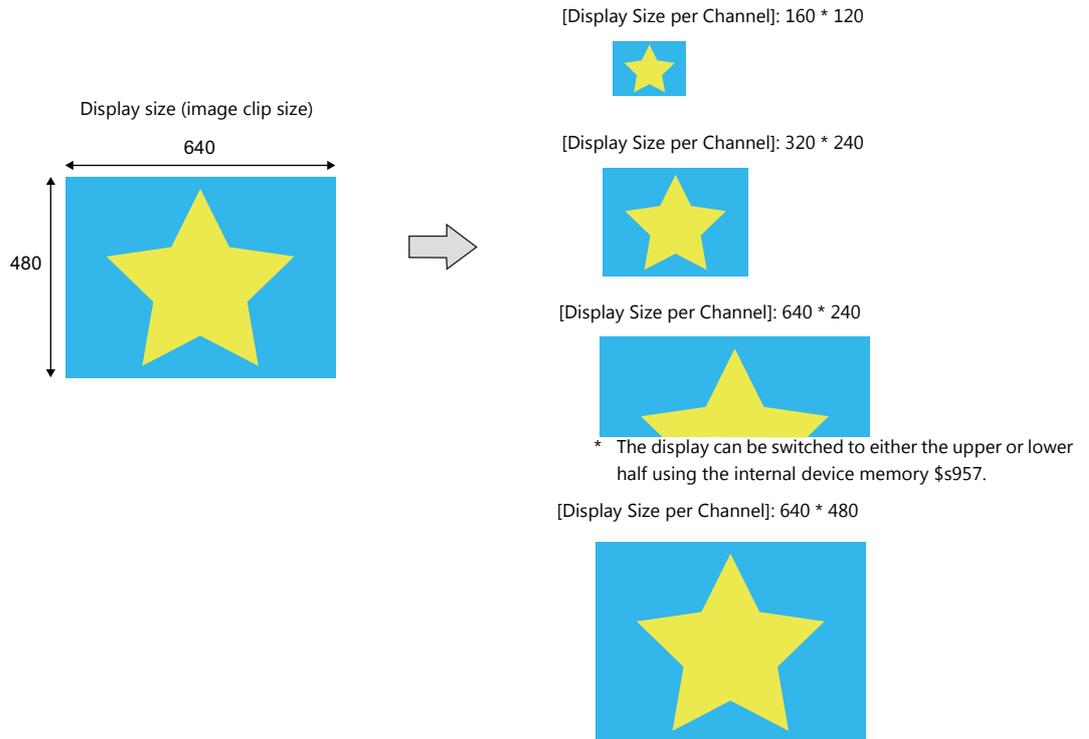


Item		Description
Number of Channels	1	Specify the number of channels to be displayed on the display area part at the same time. (Fixed to "1")
Display Size per Channel *1	Free, 160*120 / 320*240 / 640*480 / 640*240	Specify the display size for one channel. When [Free] is selected, the display size can be set as required. When the display size is [640 * 240], the display can be switched to either the upper or lower half using the internal device memory \$s957.
Fit to display area *1		This setting is available when [Display Size per Channel] is set to [Free]. Unselected The video/RGB screen is displayed according to the setting made for [Display Size per Channel]. Selected The video/RGB screen is automatically scaled to fit in the "Y" size of the placed display area part. For details, refer to "Display example" page 1-7.
Channel Select	Area 1	Specify the channel to be displayed in each video/RGB display area part. CH1 (Video)/CH5 (RGB)

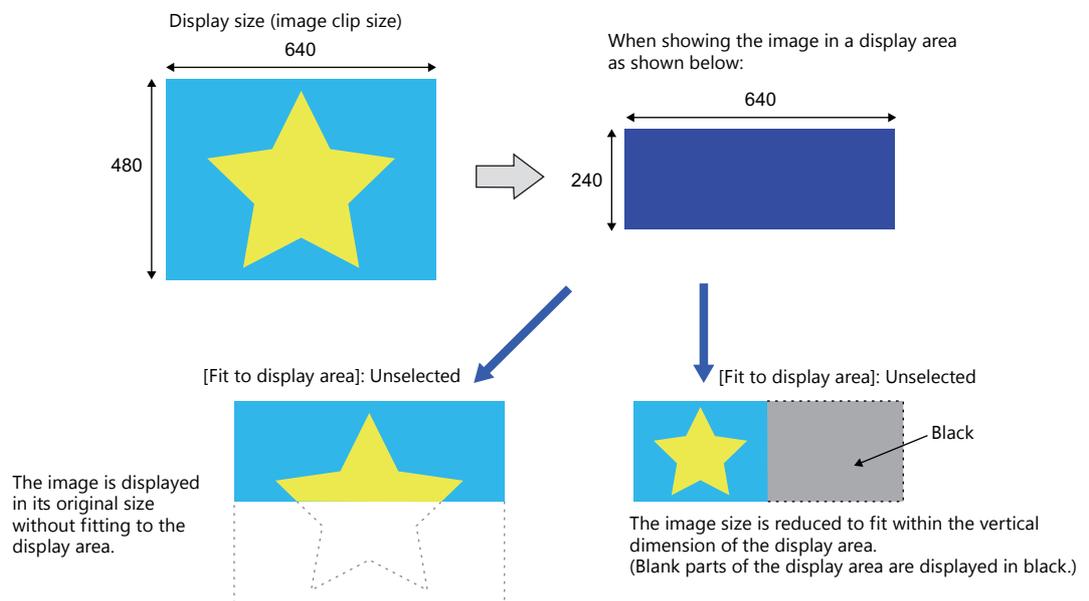
*1 Display example

- [Display Size per Channel]: 160 * 120, 320 * 240, 640 * 480, 640 * 240

The image size is reduced to fit the display area.

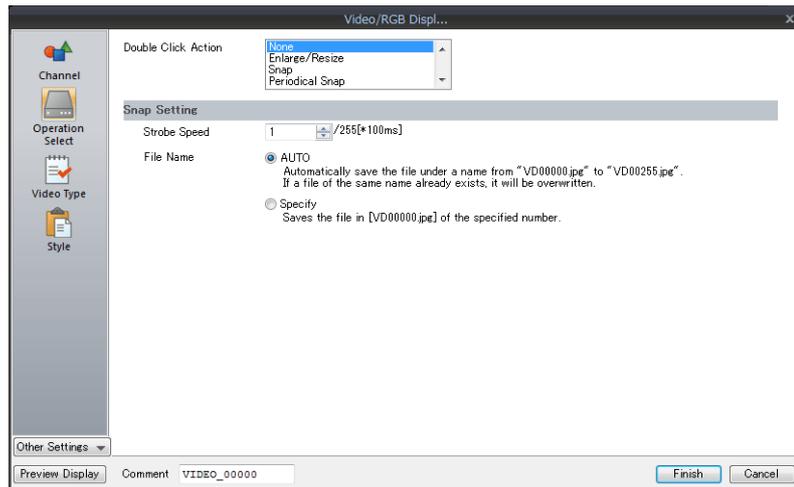


- [Display Size per Channel]: Free



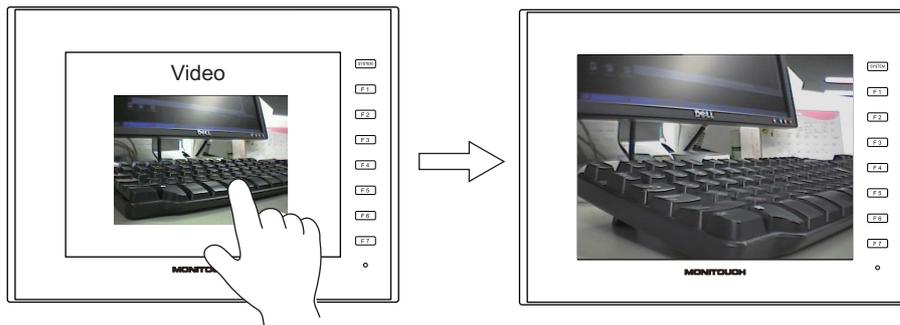
* To change the display size during video/RGB display, use the [Enlarge] display function (fixed to 640 × 480 dots) or use a video overlap display part. For details on video overlap display parts, refer to "1.1.8 Video Overlap Displays" page 1-23.

Operation Select



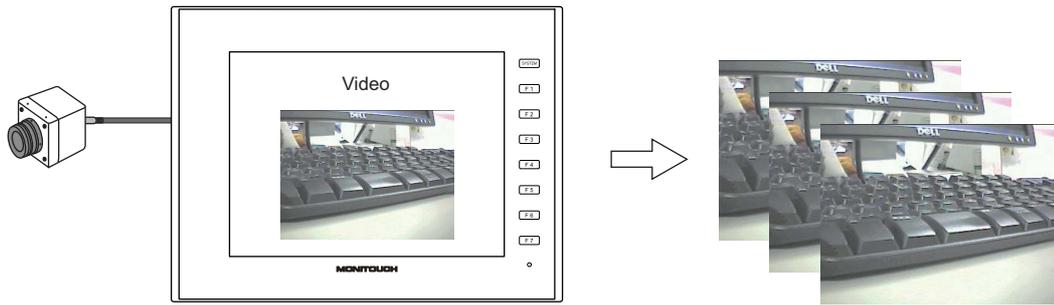
Item	Description
Double Click Action	Select the action to be performed by a double-tap operation on the video/RGB display area.
None	No action.
Enlarge/Resize ^{*1}	Enlarge the display size to 640 × 480 dots and reset to the original display size.
Snap	Take a snapshot of the displayed image and save as a JPEG file. A still image is displayed while a snapshot is being taken. When taken, the still-state is reset.
Periodical Snap ^{*2}	Take a snapshot periodically. A still image is displayed while a snapshot is being taken. When taken, the still-state is reset. Take snapshots of the target video image continuously for the set time at the set interval.
Strobe Snap ^{*3}	Take screenshots of the displayed image in succession by continuous shooting Take 16 snapshots (160 × 120 dots resolution) and save as one JPEG file (640 × 480 dots). The JPEG file is displayed once the individual snapshots are all taken. By double-tapping again, the display is reset to the original video/RGB display. When taking strobe snapshots, other operations or macro commands are not possible.
Snap Setting	Specify the filename to use when saving a snapshot.
	Save location ^{*4} : (storage device)\EXT0000\SNAP
Total Time ^{*2} Intervals	Specify the interval and total duration for taking periodical snapshots. [Total Time]: 1 to 180 sec Specify the duration for taking periodical snapshots. [Interval]: 1 to 25 sec Specify the time interval between taking each snapshot.
Strobe Speed ^{*3}	Specify the speed for taking strobe snapshots. 100 ms to 25.5 sec
File Name	Set the filename to use when saving a snapshot. AUTO (1 to 255): Save using sequential numbers from "VD00000.jpg". The maximum number of snapshots is specified at [Maximum Number of Snap Files in Auto] described in "Video Type" page 1-10. When the maximum number is reached, previous files will be overwritten starting from the "VD00000.jpg" file. Specify (0 to 32767) Save using the specified file number. If the specified file already exists, it is overwritten.

^{*1} Enlarge/Resize



*2 Periodical Snap

When set as [Total Duration: 10 sec] and [Interval: 5 sec], three snapshot files are saved.



*3 Strobe Snap

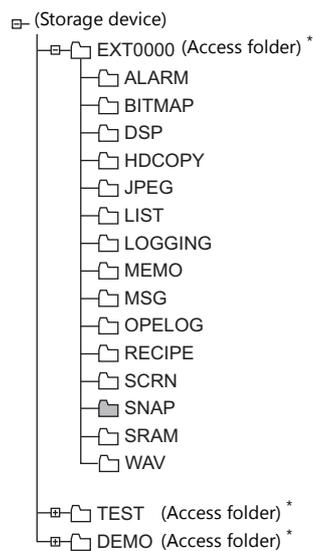
When set as [Strobe Speed: 1 sec], images for a duration of 16 seconds are taken and saved as one file.



Order of strobe snapshots

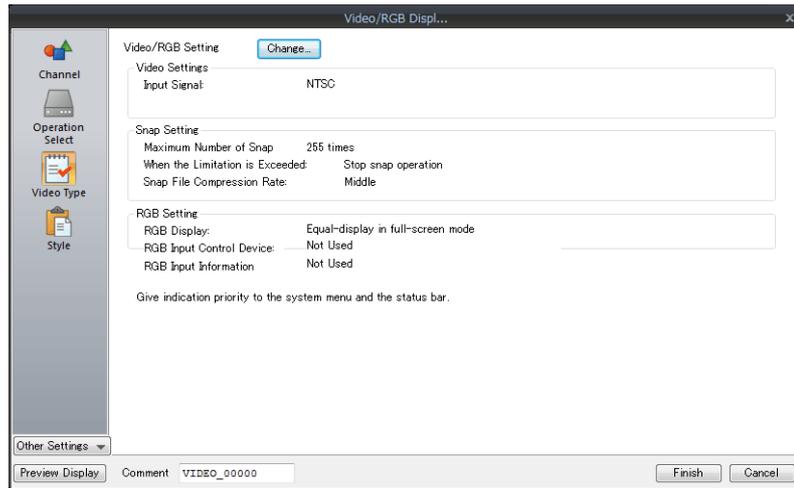
1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

*4 Save location



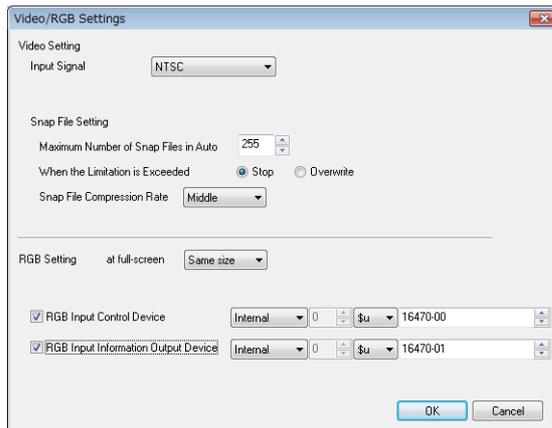
* Access folders can be given any name for each screen program data file.

Video Type



Item	Description
Video/RGB Setting	Displays the [Video/RGB Setting] configurations. Any changes to settings can be made from the [Change] button.

Video/RGB Settings



Item	Description
Video Setting	Input Signal Select the video input signal. NTSC NTSC Square Pixel PAL
Snap File Setting	Maximum Number of Snap Files in Auto Specify the number of times to automatically save snapshot files. 1 to 255
	When the Limitation is Exceeded Specify the action to perform when the maximum number of snapshots ([Maximum Number of Snap Files in Auto]) is exceeded. [Stop]: When the maximum number of snapshots has been taken, snapshot taking stops. [Overwrite]: When the maximum number of snapshots has been taken, new snapshots are saved by overwriting from the first file.
	Snap File Compression Rate Specify the compression rate for snapshot files. [High]: File size is small but image quality is lowered. [Middle]: File size and image quality are at a medium level. [Low]: File size increases with improved image quality.
RGB Setting	at full-screen Specify the action to perform when the screen size is larger than the input size. [Same size]: The input image is displayed in its original size. [Enlarge]: The input image is enlarged and displayed to fit the screen size.
RGB Input Control Device	An RGB input screen can be displayed without using a video/RGB display part. It can be displayed on any screen. On: Display Off: Not displayed
RGB Input Information Output Device	The current display status of the RGB input is output to the specified device memory. On: Display Off: Not displayed

Style



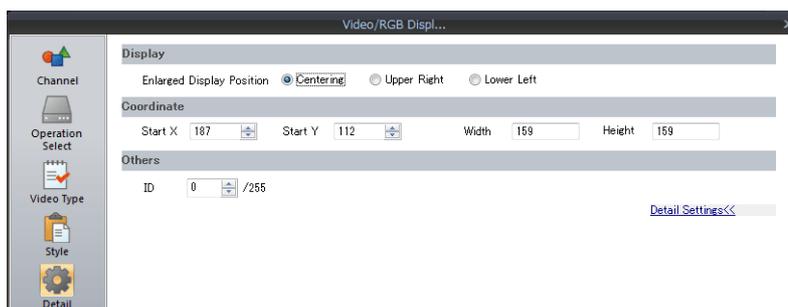
Item	Description
Additional Parts List	Select an operation switch.
Pause	The video display is paused as a still image.
Restart	The paused state of the video display is cleared.
Adjust Position	Display the window for adjusting the placement position of each part. Part size can also be changed.
Select from catalogs	Set the part design from the catalog.
Parts Design	Set the design and color of parts.
Edit Selected Parts	Configure the part selected in the [Additional Parts List] or preview pane.

Show/Hide

Set the show and hide settings of graphic items.

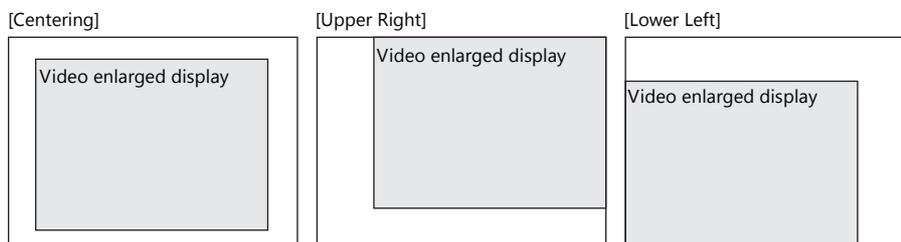
For details, refer to "14 Item Show/Hide Function" in the V9 Series Reference Manual 1.

Detail



Item	Description	
Display	Enlarged Display Position * Centering, Upper Right, Lower Left Specify the display position of the video when it is enlarged by double-tapping or by the ZOOM macro command. Enlarged size: 640 × 480 dots	
Coordinate	Start X/Start Y	Specify the coordinates of the display area.
	Width/Height	Set the size of the display area.
Others	ID Set an ID number.	

* Enlarged Display Position

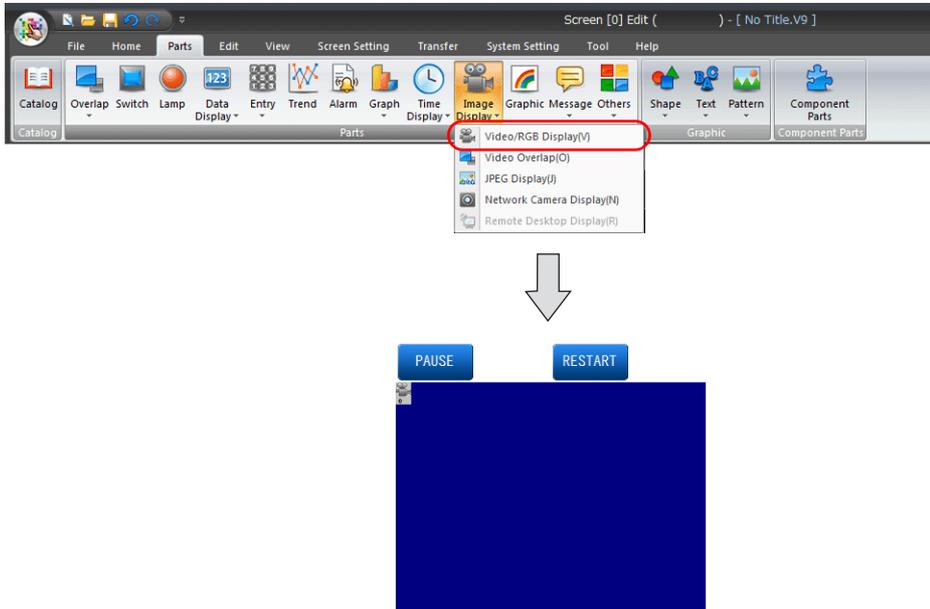


1.1.4 Video Display

Display Method

Using a video/RGB display part

Click [Parts] → [Image Display] → [Video/RGB Display] and place a part.



☞ For details on the settings, refer to “1.1.3 Detailed Settings” page 1-6.

Using a video overlap display part

When intending to change the display size of the video while it is displayed, use a video overlap display part.

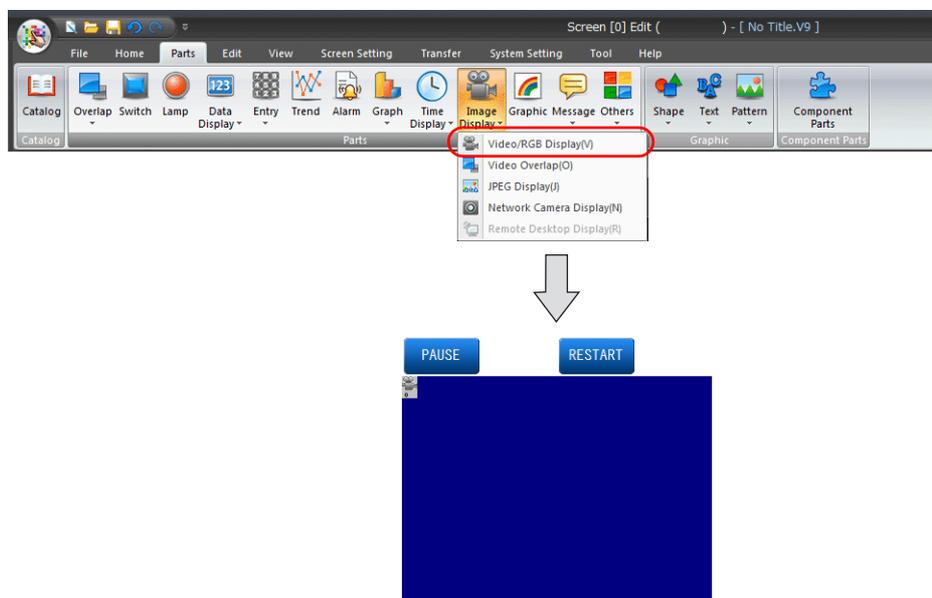
☞ For details on video overlap display parts, refer to “1.1.8 Video Overlap Displays” page 1-23.

1.1.5 RGB Input Signal Display

Display Method

Using a video/RGB display part (displaying within the display area)

Click [Parts] → [Image Display] → [Video/RGB Display] and place a part.

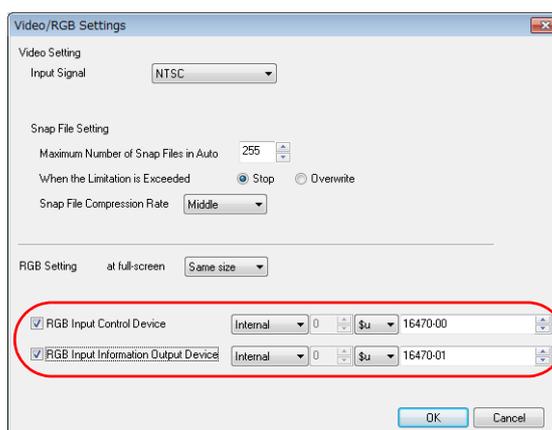


For details on the settings, refer to "1.1.3 Detailed Settings" page 1-6.

Using an RGB input control device memory (displaying the RGB input signal on the entire screen)

An RGB input screen can be displayed without using a video/RGB display part. When the bit is turned ON, the RGB input screen is displayed regardless of what screen is currently displayed.

- Location of settings: [System Setting] → [Unit Setting] → [Video/RGB]
 - [1] (ON level): RGB input screen is displayed.
 - [0] (OFF level): RUN mode screen is displayed.



* The RGB input information output device memory stores the current display status of the RGB input screen.

Using a macro command (displaying the RGB input signal on the entire screen)

Switch to the RGB input screen using the "SYS (SET_RGB)" macro command.
For details, refer to the V9 Series Macro Reference Manual.

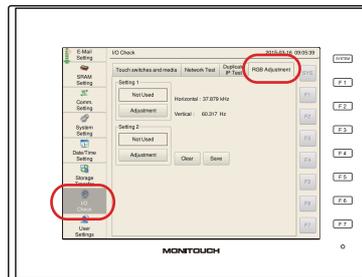
Switching RGB input parameters

As adjustment parameters for RGB input signals, [Setting 1] and [Setting 2] can be configured. If the frequencies configured for [Setting 1] and [Setting 2] differ, the V9 series unit will automatically recognize and switch to either [Setting 1] or [Setting 2]. If the frequencies do not change, the [Setting 1] adjustment parameters are used. If the frequencies do not change but the adjustment parameters differ, switch between [Setting 1] and [Setting 2] using a macro command. Use the "SYS (CHG_RGB)" macro command to switch the RGB input parameters. For details, refer to the V9 Series Macro Reference Manual.

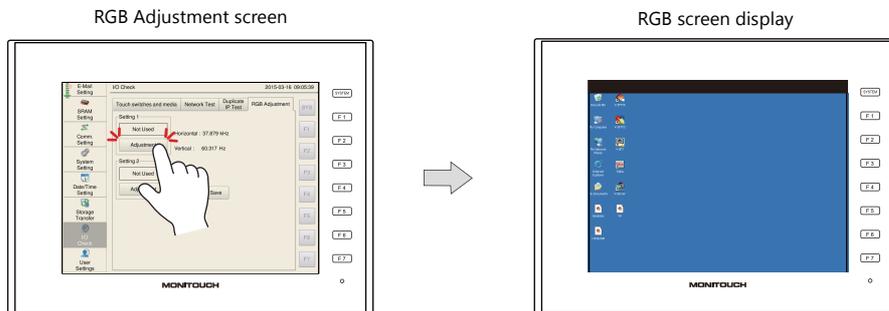
Adjustment of RGB Input Screen

If two types of output frequencies are used, configure both [Setting 1] and [Setting 2]. If only one type is used, configure either [Setting 1] or [Setting 2]. The procedure for adjusting the display position of a Windows screen with [Setting 1] is described below.

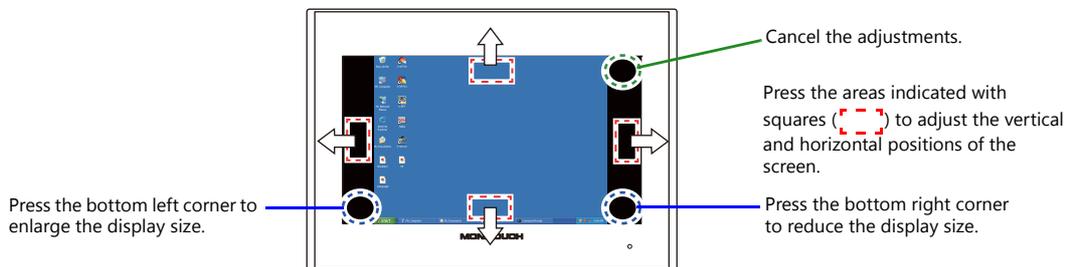
1. Switch to Local mode on the V9 series unit and make adjustments on the [I/O Check] → [RGB Adjustment] tab.



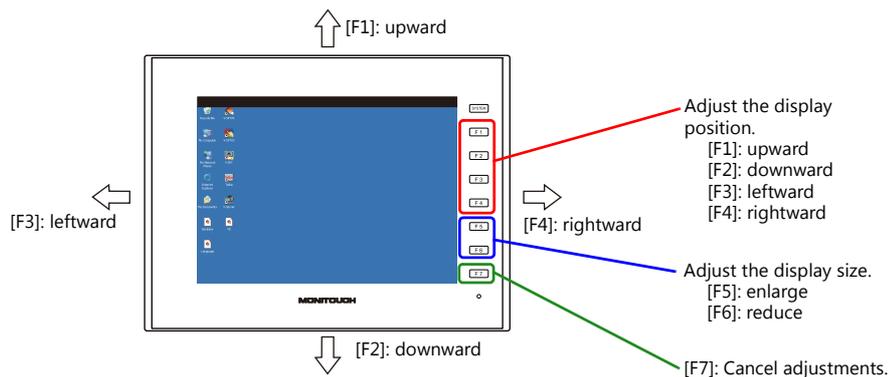
2. Display a Windows screen on the computer in advance. Press the [Adjustment] switch for [Setting 1] to switch to an RGB display of a Windows screen.



3. With a Windows screen displayed, adjust the display position and size.
 - V9 Advanced models
Press the top, bottom, left, and right sides of the screen to adjust.



- V9 Standard models
Adjust using the function switches.

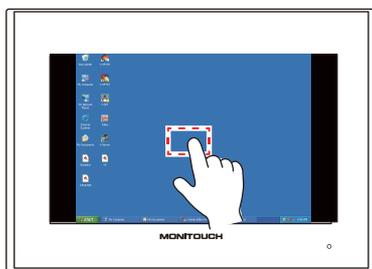


4. Finishing position adjustment

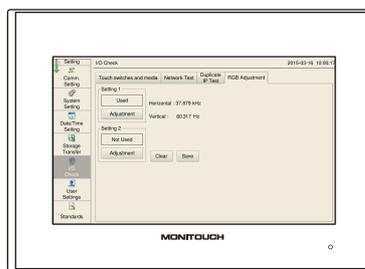
When the position has been adjusted, display the RGB Adjustment screen again. The [Used] lamp for [Setting 1] lights up.

- V9 Advanced models
Press the center of the screen to finish adjustment.

Adjustment of screen display position is completed

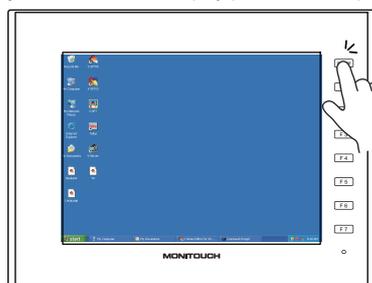


RGB Adjustment screen

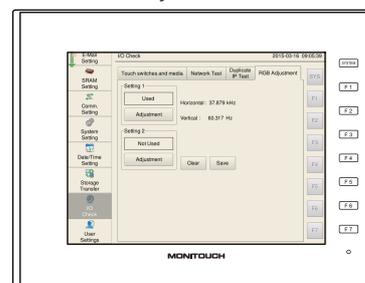


- V9 Standard models
Press the [SYSTEM] switch to finish adjustment.

Adjustment of screen display position is completed

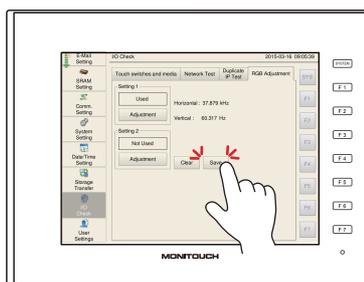


RGB Adjustment screen



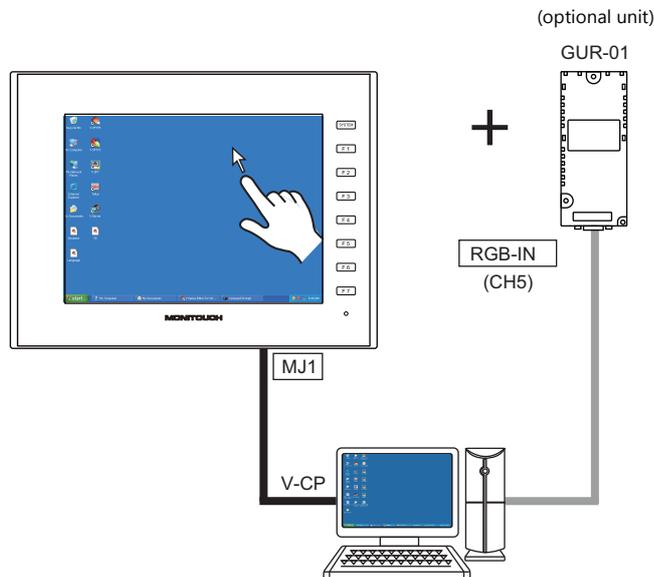
5. Press the [Save] switch to save the settings. Settings are stored in the flash ROM, so they will be retained even when the power is turned off and on again.

Setting is completed



Touch Switch Emulation

- Using this function, the Windows screen displayed on the V9 series unit can be operated by touch operations without using a mouse. This function is available regardless of the display size.
- Connect the computer to the modular jack (MJ1 or MJ2) on the V9 series unit.



Touch panel driver

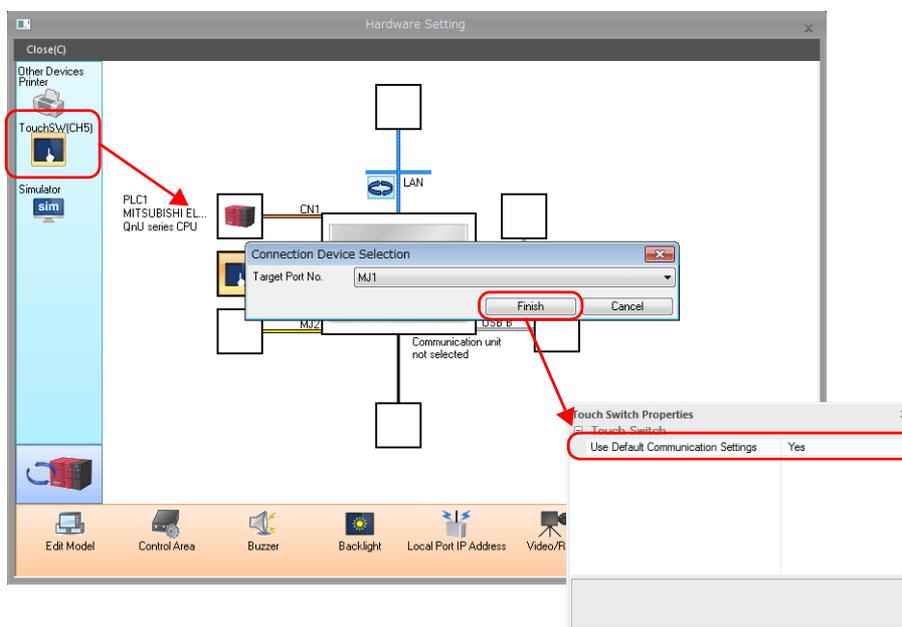
Maker	Type	Version		Applicable OS
GUNZE	TPDD	3.00	Non-supported version Product version	Windows 7(32bit) / Vista(32bit) / XP

Limitations

- DOS application software which run on the MS-DOS prompt window cannot be operated by touch operations.
- A PS/2 compatible mouse can be used in combination with touch operations. However, some pointing devices such as those provided on laptop computers may not.

V-SFT settings

1. Double-click on [Hardware Setting] → [TouchSW(CH5)] and set the [Target Port No.] on V-SFT.
2. Click [Finish] to display the [Touch Switch Properties] window.
Set [Use Default Communication Settings] to [Yes].



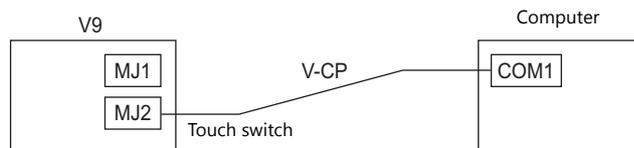
Item		Description
Connection Device Selection	Target Port No.	Select the port to connect the computer. The selected port is used to send the output touch switch coordinates to the computer. MJ1/MJ2
Touch Switch Properties	Use Default Communication Settings	Select [Yes].

* **Install Gunze's touch panel driver on the computer to be connected to the V9 series unit.**
For the installation procedure, refer to the installation manual provided with Gunze's touch panel driver.

Touch switch emulation setting example

This section describes the procedure for adding the touch switch emulation function in an RGB input environment.

1. Switch to an RGB input screen (a Windows screen is displayed).
2. Start V-SFT and open the file currently transferred to the V9 series unit.
3. Click on [System Setting] → [Hardware Setting] → [TouchSW(CH5)] and set the [Target Port No.] to [MJ2].
4. Click [Finish] to display the [Touch Switch Properties] window.
Set [Use Default Communication Settings] to [Yes].
5. Save the file and transfer it to the V9 series unit.
6. The V9 series unit switches to RUN mode. Switch to an RGB input screen (a Windows screen is displayed).
7. To perform touch switch emulation, connect the COM1 communication port of the computer and MJ2 (for touch switch operation) of the V9 series unit using a V-CP cable (refer to item 5 in "Notes" described later).



8. Install Gunze's touch panel driver on the computer.
Download "TOUCH PANEL DRIVER TPDD" from Gunze's download site and extract the files to a drive on the computer. Double-click the included "setup.exe" file.
Install the driver as follows:
[Welcome TPDD] → [Select Language: ENGLISH] → [Select Controller: 4/8 Wire-Type Touch Panel] → [Select Clone File: unselected] → [License Agreement: Agree] → [Installing TPDD]
When installation is complete, click [Finish].
9. Reboot the computer.
10. Make TPDD settings.
 - 1) After rebooting the computer, click the start button and open the [Touch Panel Device Properties] window from [Programs] → [Gunze TPDD] → [Adjust Setting].
 - 2) Click the [Device] tab in the [Touch Panel Device Properties] window and click the [Add] button.
 - 3) The [New Pointer Device] window is displayed. Select "Gunze AHL, Serial" and select "COM1" for [Select COM port]. Then click [Next].
 - 4) The [New Pointer Device] window is displayed. Select "Whole Desktop" and click [OK].
 - 5) When the [Touch Panel Device Properties] window is displayed again, click the [Apply] button and then the [Calibrate] button.
 - 6) The calibration program starts up. Configure calibration settings (refer to item 3 in "Notes" described below). This completes the necessary settings.

Notes

1. It is not possible to switch to Local mode when a Windows screen is displayed on the V9 series unit.
2. When installing the touch panel driver, select "Auto Detect" for [Serial Setting]. When "Auto Detect" is selected, the COM port, address, and IRQ of the computer connected to the V9 series unit are automatically detected and set. Therefore, the V9 series unit must be connected with the computer with a V-CP cable in RUN mode before starting up the computer. The following communication settings are fixed: [Baud Rate: 9600BPS], [Parity: None], [Data Length: 8-Bit], [Stop Bit: 1-Bit].
3. Correct the touch operation position and mouse cursor display position using the calibration software. Precisely touch the "x" mark displayed on the screen in order from the 1st point (top left), 2nd point (bottom left), 3rd point (top right), and 4th point (bottom right). Be sure to touch all four points. If calibration isn't performed correctly, perform again. Otherwise touch operations are not possible.
4. If the display size is changed in Local mode, always start the calibration software in RUN mode and correct the touch operation points and mouse cursor display position.
5. Once the touch panel driver is installed, the set serial port cannot be used for other applications unless the driver is uninstalled or the port is freed by changing the setting for [Adjustment Setting].
6. For details of the [Adjustment Setting] window of TPDD, refer to the Gunze help menu (normally, default settings can be used).
7. Set the V9 series unit in RUN mode before starting the computer. If the V9 series unit is in Local mode, the COM port will not be recognized.

1.1.6 Macro Commands

Macro commands can be used for operations and color adjustment of video/RGB displays.

Default Video Display Settings

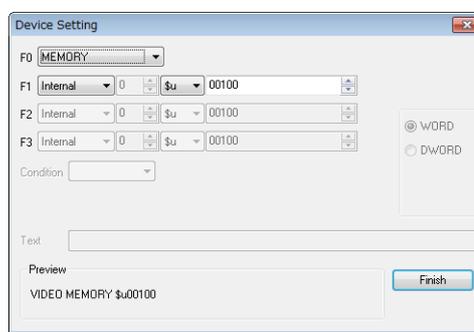
When no macro command is used, the video screen is displayed under the default settings.

Item	Type	Default Value
Brightness	0 (dark) to 31 (bright)	16
Contrast	0 (weak) to 31 (strong)	16
Color intensity	0 (light) to 31 (dark)	16

Video/RGB Display Macro Commands

The "VIDEO2" type macro commands are available for video/RGB display parts.

- ☞ "VIDEO" macro commands are available only for video overlap displays. For details, refer to "1.1.8 Video Overlap Displays" page 1-23.



Command selection

Name	Auxiliary Settings	
	Description	
SNAP	Channel: [Auto], [CH1/5] File No.: [AUTO], [No. designation (0 to 32767)]	Executes a "single snap" in the background. When using a storage device, the method for saving snapshot images can be specified.
STROBE	Channel: [Auto], [CH1/5] File No.: [AUTO], [No. designation (0 to 32767)]	Executes a "strobe snap". When using a storage device, the method for saving snapshot images can be specified. This command is ignored if a video/RGB image is not displayed on the screen.
RE_SIZE		Resets the size of the video/RGB display that was enlarged by double-tapping on the display item or using the ZOOM macro command, or the video display that was enlarged by taking a strobe snapshot. An enlarged display size can be reset by double-tapping on it without executing this command.
ZOOM	Channel: [Auto], [CH1/5] Position: [Centering], [Upper Right], [Lower Left]	Enlarges the video/RGB screen to 640 × 480 dots. If this command is executed continuously, the previous operation is automatically cleared.
BRIGHT	Channel: [Auto], [CH1] Brightness: 0 to 31	Adjusts the brightness of the video image (not available for RGB images).
CONTRAST	Channel: [Auto], [CH1] Contrast: 0 to 31	Adjusts the contrast of the video image (not available for RGB images).
COLOR	Channel: [Auto], [CH1] Color: 0 to 31	Adjusts the color of the video image (not available for RGB images).
VIDEOINF	Channel: [Auto], [CH1/5] Video/RGB display status: [SAVE], [DEFAULT]	Saves the current state of the video/RGB display or resets to the default settings. When [SAVE] is selected, the current video display state is saved so that even if a power failure occurs, the video/RGB image can be displayed in the same state as before. When [DEFAULT] is selected, the display state is reset to default.

Name	Auxiliary Settings
	Description
PAUSE	Channel: [Auto], [CH1/5] Pauses the video/RGB display of the specified channel. The size cannot be changed while paused.
RESTART	Channel: [Auto], [CH1/5] The video/RGB display that was paused with the PAUSE command is released.
DELETE	File No.: 0 to 32767 Deletes a JPEG file (filename: VDxxxx.jpg) that was saved to a storage device by a snapshot function.
SNAP_SEQ	Channel: [Auto], [CH1/5] Start/stop: 0 = stop, 1 = start Starts or stops periodical snap.
CLIP_POS	Channel: [Auto], [CH1/5] Clip Start Position: X coordinate, Y coordinate Changes the clip start position.
CLIP_SIZE	Channel: [Auto], [CH1/5] Image clip size change: Width, Height Changes the image clip size.

 For details, refer to the V9 Series Macro Reference Manual.

Specification by device memory: Video2 MEMORY F1

- Available device memory

	Internal Device Memory	PLC Device Memory	Constant	Memory Card	Indirect Designation
F1	○				

- F1 details

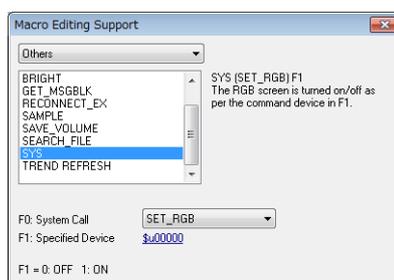
n	Command No.
n + 1	CH No./File No.
n + 2	Setting value

Command Name	Command No.	CH No./File No.	Setting Value
SNAP	0	1 / 5 (CH), -1 (AUTO)	0 to 32767 (File No.) / -1 (AUTO)
STROBE	1	1 / 5 (CH), -1 (AUTO)	0 to 32767 (File No.) / -1 (AUTO)
RE_SIZE	2		
ZOOM	3	1 / 5 (CH), -1 (AUTO)	0 to 2 (Centering, Upper Right, Lower Left: for SVGA only)
BRIGHT	4	1 to 4 (CH)	0 to 31
CONTRAST	5	1 to 4 (CH)	0 to 31
COLOR	6	1 to 4 (CH)	0 to 31
VIDEO_INF	7	1 / 5 (CH)	0 : SAVE, 1 : DEFAULT
PAUSE	8	1 / 5 (CH), -1 (AUTO)	
RESTART	9	1 / 5 (CH), -1 (AUTO)	
DELETE	10	0 to 32767 (File No.)	
SNAP (background)	11	1 / 5 (CH)	0 to 32767 (File No.) / -1 (AUTO) (n + 3) 0: 160 * 120, 1: 320 * 240 2: 640 * 480, 3: 640 * 240
SNAP_SEQ	12	1 / 5 (CH), -1 (AUTO)	0: stop, 1: start
CLIP_POS	13	1 / 5 (CH), -1 (AUTO)	0 and up (up to the maximum screen resolution)
CLIP_SIZE	14	1 / 5 (CH), -1 (AUTO)	1 and up (up to the maximum screen resolution)

- [AUTO] setting
When setting a macro, [AUTO] can be selected for the channel number (CH) and file number.
 - When the channel number is set to [AUTO]:
[SNAP] [STROBE] [ZOOM] [BRIGHT] [CONTRAST] [COLOR] [VIDEOINF] [PAUSE] [RESTART] [SNAP_SEQ] [CLIP_POS] [CLIP_SIZE]
 - *1 During "ZOOM", the relevant channel number is automatically set.
 - *2 When a channel with a high display priority is shown, the relevant channel number is automatically set.
 - *3 When neither *1 or *2 is applicable, it depends on the number of displayed channels.
If multiple channels are displayed, the above commands are not executed.
 - When the file number is set to [AUTO]:
[SNAP] [STROBE]
When no file exists, the command creates files starting from No. 0. When there are existing files, the command creates files starting from the number incremented from the largest file number (not exceeding the number set for [Maximum Number of Snap Files in Auto]).
When the maximum number is reached, the operation taken depends on the [When the Limitation is Exceeded] setting. If set to [Stop], the command stops, but if set to [Auto], the command starts creating files from No. 0.
-  For details on [Maximum Number of Snap Files in Auto] and [When the Limitation is Exceeded], refer to [page 1-10](#).

RGB Macro Commands

The macro commands that are available only for video/RGB display parts that are displaying RGB input are "SYS (SET_RGB)" and "SYS (RGB_CHG)".



SYS (SET_RGB) F1

- Available device memory

	Internal Device Memory	PLC Device Memory	Constant	Memory Card	Indirect Designation
F1	○				

- F1 details

F1 Value	F1 + 1 Value	Operation
0	-	Clears the RGB screen.
1	-	Displays the RGB screen.
2	File number (0 to 32767, -1 [AUTO])	Displays the RGB screen and takes a snapshot.
3	File number (0 to 32767)	Delete the JPEG file of a snapshot.
4 to 7	Reserved for system	-
8	CH No.5	Specifies the channel number to be displayed or not displayed, or the channel number for touch switch emulation.

SYS (RGB_CHG) F1

- Available device memory

	Internal Device Memory	PLC Device Memory	Constant	Memory Card	Indirect Designation
F1	○				

- F1 details

F1 Value	F1 + 1 Value	Operation
0	Setting 1	Sets the clip start position with the value of [Setting 1].
1	Setting 2	Sets the clip start position with the value of [Setting 2].

 For details, refer to the V9 Series Macro Reference Manual.

1.1.7 System Device Memory (\$s)

The video display state is output to system device memory (\$s).

Address	Description																																	
910	Video CH1 Brightness																																	
911	Video CH1 Contrast	←V																																
912	Video CH1 Color intensity																																	
930	Video status	←V																																
	<p>MSB LSB</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>09</td><td>08</td><td>07</td><td>06</td><td>05</td><td>04</td><td>03</td><td>02</td><td>01</td><td>00</td> </tr> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td> </tr> </table> <p>1: Video board error Reserved for system (set to "0") 1: Taking a snapshot 1: Maximum snapshot files</p>	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																			
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																			
932	Automatic Stores the snapshot file number.																																	
935	Video Brightness of the selected video area																																	
936	Video Contrast of the selected video area																																	
937	Video Color intensity of the selected video area																																	
957	Video Display change (640 × 240 dots only) The display can be switched to either the upper or lower half.	→V																																
	<p>MSB LSB</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>09</td><td>08</td><td>07</td><td>06</td><td>05</td><td>04</td><td>03</td><td>02</td><td>01</td><td>00</td> </tr> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td> </tr> </table> <p style="text-align: center;">Not used CH1 0: Upper half display 1: Lower half display</p>	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																			
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																			
961 (Under development)	Video Standard size setting (for V9150iX only) Specify with the initial macro. The display area size is set to 640 × 480.	→V																																
	<p>MSB LSB</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>09</td><td>08</td><td>07</td><td>06</td><td>05</td><td>04</td><td>03</td><td>02</td><td>01</td><td>00</td> </tr> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td> </tr> </table> <p style="text-align: center;">Not used 00: 640 × 480 01: 800 × 600 10: 1024 × 768</p>	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																			
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																			
962	Number of periodic snapshots executed Cleared to 0 when taking of snapshots starts.																																	
966	Video Current clip start position (X coordinate at the top left corner)	←V																																
967	Video Current clip start position (Y coordinate at the top left corner)																																	
968	Video Current image clip size (width)																																	
969	Video Current image clip size (height)																																	
970	RGN IN Limit on number of snapshot executions using "SET_RGB" macro Setting value: 0 to 255																																	
971	RGB IN Processing to perform when the number of snapshot executions exceeds the limit specified with \$s970 0: Stop 1: Continue	→V																																

1.1.8 Video Overlap Displays

When intending to change the display size of the video while it is displayed, use a video overlap display part.

Location of Settings

- [System Setting] → [Unit Setting] → [Video/RGB] → [Video/RGB Settings] window
- [Parts] → [Image Display] → [Video Overlap]

Settings Window



For details on [Operation Select] and [Video Type] settings, refer to [“1.1.3 Detailed Settings” page 1-6](#). This section describes the settings which are different from those of a video/RGB display part.

Menu	Item	Description
Channel	Number of Channels	This is fixed to “1”.
	Channel Select	This is fixed to “CH1 (Video)”.
Detail	Control Device	Specify the bit to use when displaying a video by an external command.
	Coordinate	Specify the video display position. The video display is displayed with its upper left corner aligned to these coordinates.
	Overlap ID	Specify the overlap area (ID 0 to 9) to where a video display is to be called.

Video Display Settings (Macro Commands)

The size and color of the video display can be specified using video macro commands. When no macro command is used, the video display is displayed according to default settings. When a macro command is executed, the macro command takes priority.

Default video display settings

The default settings are shown below.

Item	Type	Default Value
Size	160 × 120, 320 × 240, 640 × 480, 640 × 240	320 × 240
Display channel	CH1	1 (CH)
Brightness	0 (dark) to 255 (bright)	183
Contrast	0 (weak) to 255 (strong)	48
Color intensity	0 (light) to 255 (dark)	1

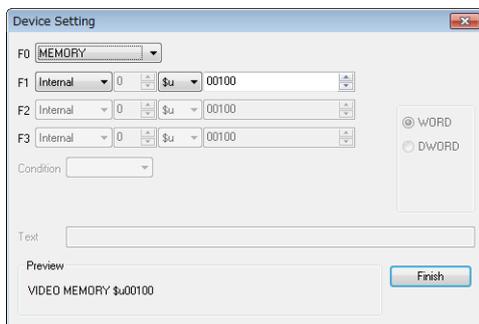
The video display state is output to internal system device memory (\$s). The output is as shown below.

Address	Description
\$s170	Channel No.
\$s171	Dither (fixed to 1 (yes))
\$s172	Brightness
\$s173	Contrast
\$s174	Color intensity

Changing default settings

Settings can be changed using macro commands. The size, channel number, brightness, contrast and color intensity of the video display can be set.

Select the "Video" macro command. The following window is displayed.



- Command selection

Command Name	Description
SIZE	(160 × 120, 340 × 240, 640 × 480, 640 × 240) Specifys the video window size.
SEL_CH	(1) Specify the channel number of the input port.
BRIGHT	(0 to 255) Specify the brightness of the video image.
CONTRAST	(0 to 255) Specify the contrast of the video image.
COLOR	(0 to 255) Specify the color intensity of the video image.
VIDEO_INF	(SAVE, DEFAULT) Save the current state of the video display or reset to the default settings. When [SAVE] is selected, the current video display state is saved so that even if a power failure occurs, the video image can be displayed in the same state as before. When [DEFAULT] is selected, the display state is reset to default. The V9 series unit may stop for a second when this command is executed.

- Example

Channel No.: 1 (CH1)

Size: 640 × 480 dots

The macro commands to change to these conditions is as follows:

Video SEL_CH 1 → CH1 selection

Video SIZE 640 × 480 → Size selection

Video_INF SAVE → Saving the state to device memory

- Specification by device memory: Video MEMORY F1

n	Command No.
n + 1	Setting Value

Command Name	Command No.	Setting Value
SIZE	0	0: 160 × 120, 1: 320 × 240, 2: 640 × 480, 3: 640 × 240
SEL_CH	1	1
BRIGHT	3	0 to 255
CONTRAST	4	0 to 255
COLOR	5	0 to 255
VIDEO_INF	6	0: SAVE, 1: DEFAULT

- Example

Channel No.: 1 (CH1)

Size: 640 × 480 dots

The macro commands to change to these conditions with the "Video MEMORY" macro command set as [F1: \$u00100] is as follows:

Selecting channel number 1

\$u00100=1(W) → Command (SEL_CH) selection

\$u00101=1 (W) → 1CH selection

Video MEMORY \$u00100 → Command execution

Changing the window size

\$u00100=0(W) → Command (SIZE) selection

\$u00101=2 (W) → 640 * 480 dots selection

Video MEMORY \$u00100 → Command execution

Saving in memory

\$u00100=6(W) → Command (Video_INF) selection

\$u00101=0(W) → SAVE selection

Video MEMORY \$u00100 → Command execution

Show/Hide Video Overlap Displays

A video overlap display can be shown or hidden by the following three methods.

Method		Details	Refer to
Internal command	Switch	Function: Overlap Display	Subsequent explanation
	Macro	OVL_P_SHOW OVL_P_POS	V9 Series Macro Reference Manual
External command	Control device memory	0: Hide, 1: Show	Subsequent explanation

Internal command

- Switches

Switches can be used to show and hide video overlap displays.

The following switches can be used.

Operation	Switch Function	Auxiliary Settings
Show	Overlap Display	Overlap ID 0 to 9 Action = ON
		Overlap ID 0 to 9 Action = ALT
Hide	Overlap Display	Overlap ID 0 to 9 Action = OFF
		Overlap ID 0 to 9 Action = ALT

 For details on switch settings, refer to V9 Series Reference Manual 1.

- Macro commands

A macro command can be used to show and hide video overlap displays.

Use the "OVL_P_SHOW" macro command.

The display position can be specified as well (using the "OVL_P_POS" macro command).

 For details, refer to the V9 Series Macro Reference Manual.

External command

Commands from the [Control Device] can be used to show and hide video overlap displays. *

* Bit ON/OFF recognition

The method used for bit status recognition differs depending on the setting of [Display Overlap during bit ON] on the [General Settings] tab accessible by clicking [System Setting] → [Unit Setting] → [General Setting].

- Unselected

The change (edge) from 0 to 1 or 1 to 0 is used to recognize the bit status.

- Selected

Level recognition is used to determine the bit status.

For example, an overlap display is shown on the screen using an external command, the screen is switched to another screen, and then the first screen is displayed again. In this case, the overlap display that corresponds to the bit being turned ON appears on the screen.

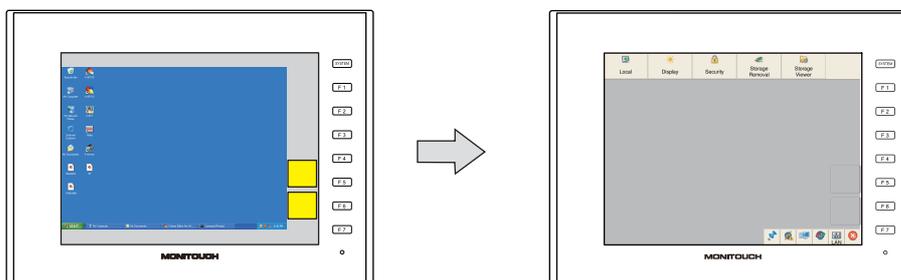
Notes on showing an overlap display using a control device memory

A switch set as [Function: Overlap Display = OFF] can be used to hide the overlap display.

Using this type of switch hides the overlap display with the bit of the control device memory still turned ON. To show the overlap display again, the bit needs to be turned OFF and ON again.

1.1.9 Notes

- If the system menu, status bar or communication error display (only [Comm. Error handling: Continue]) overlaps with a video/RGB input display area, the video/RGB input display is hidden.



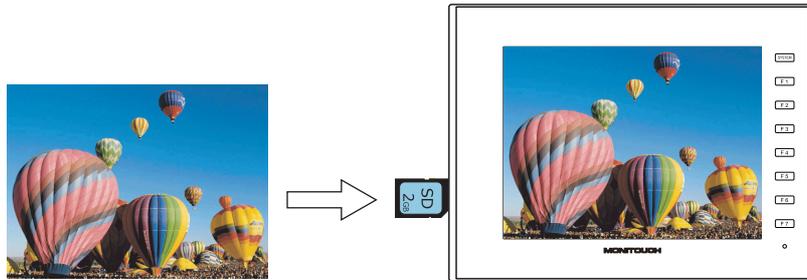
- When an RGB input screen is displayed using RGB input control device memory or a "SYS (SET_RGB)" macro command, the system menu, status bar, and communication error display (only [Comm. Error handling: Continue]) cannot be displayed.
- Items and parts including overlap displays cannot be superimposed on a video/RGB display. The video/RGB display is displayed in the foreground of the screen.
- If the size of the video/RGB display is smaller than the display area, the margins of the display area turn black.
- When an RGB input screen is displayed but there is no RGB input signal (such as when the cable is not connected), the RGB input screen turns transparent.

1.2 JPEG Display

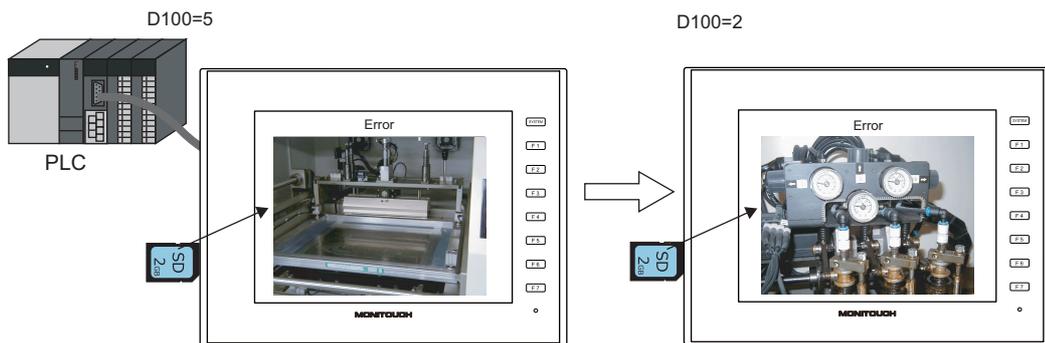
1.2.1 Overview

JPEG File Display

- Display JPEG files saved to a storage device.
- JPEG files with a resolution up to 1024 × 768 can be displayed.
Note that when changing [Screen Size] for the display size setting using the [Scroll] function, the set resolution can also be displayed.

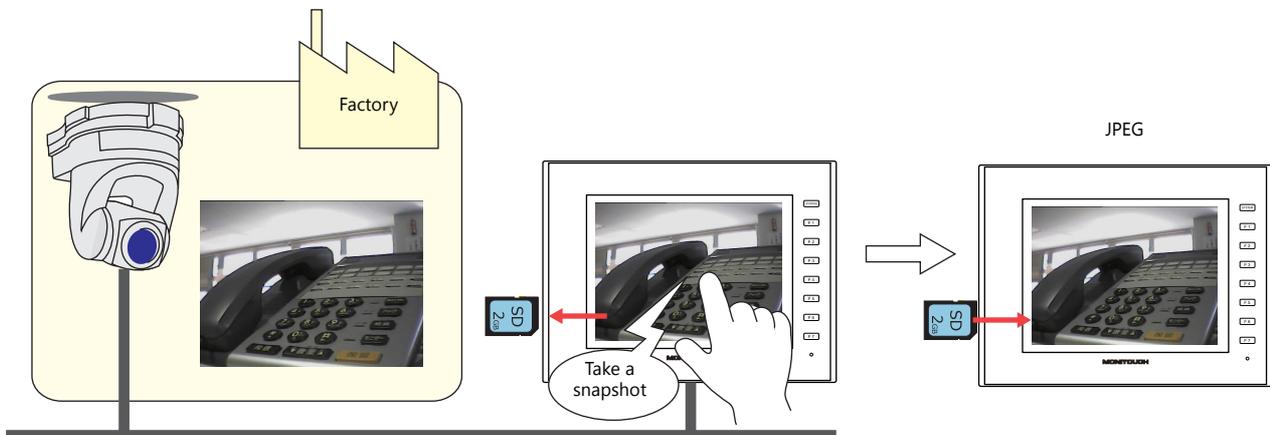


- There are three ways to load JPEG files.
 - Filename specification
 - File number specification (fixed)
 - File number specification (PLC device memory)



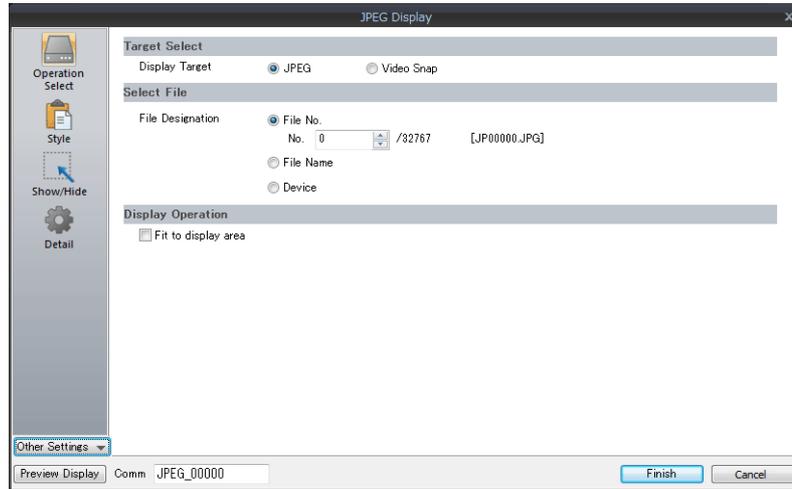
Network Camera Image Display

- Display network camera snapshot images saved to a storage device.
- Two methods of specifying a file number and designating a file number from the PLC are available.



1.2.2 Detailed Settings

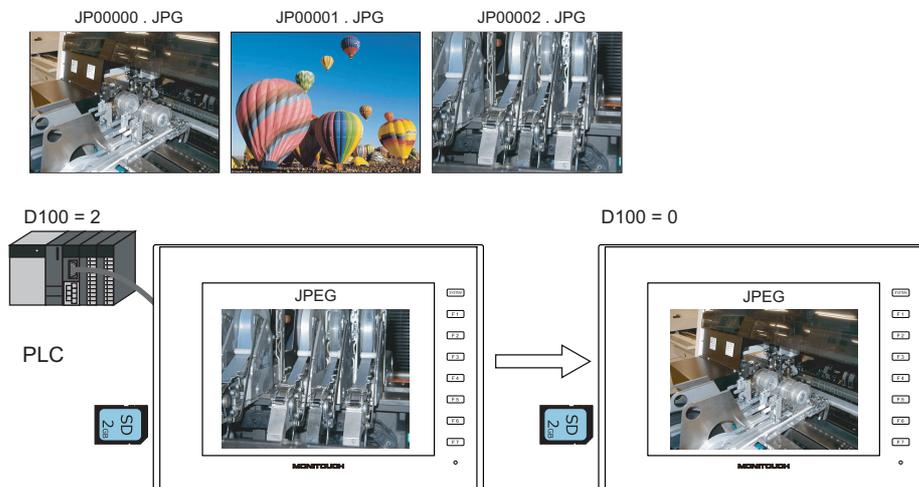
Operation Select



Item	Description
Target Select	Select a display target.
JPEG	Display a JPEG file prepared in advance. Filename: JPxxxx.jpg (xxxx: 00000 to 32767) Any filename (maximum of 64 one-byte numerals or uppercase alphabetic characters)
Video Snap	Display a video snapshot image. Filename: VDxxxx.jpg (xxxx: 00000 to 32767)
Select File	Select the file specification method.
File No.	Specify the "xxxxx" part of "JPxxxx.jpg" or "VDxxxx.jpg" with a file number from 0 to 32767.
File Name	Specify a filename. Maximum of 64 one-byte numerals or uppercase alphabetic characters
Device *1	Set the device memory address that specifies the "xxxxx" part of "JPxxxx.jpg" or "VDxxxx.jpg" with a file number from 0 to 32767. This allows the JPEG file to be changed in RUN mode.
Display Operation	Fit to display area *2 Unselected: Actual size Selected: Automatically enlarge or reduce the display according to the size of the display area. The level of display detail can be specified at \$s1008 when enlarging or reducing the display.

\$s1008	Detail	Speed
0	Coarse	Fast
1	Fine	Slow

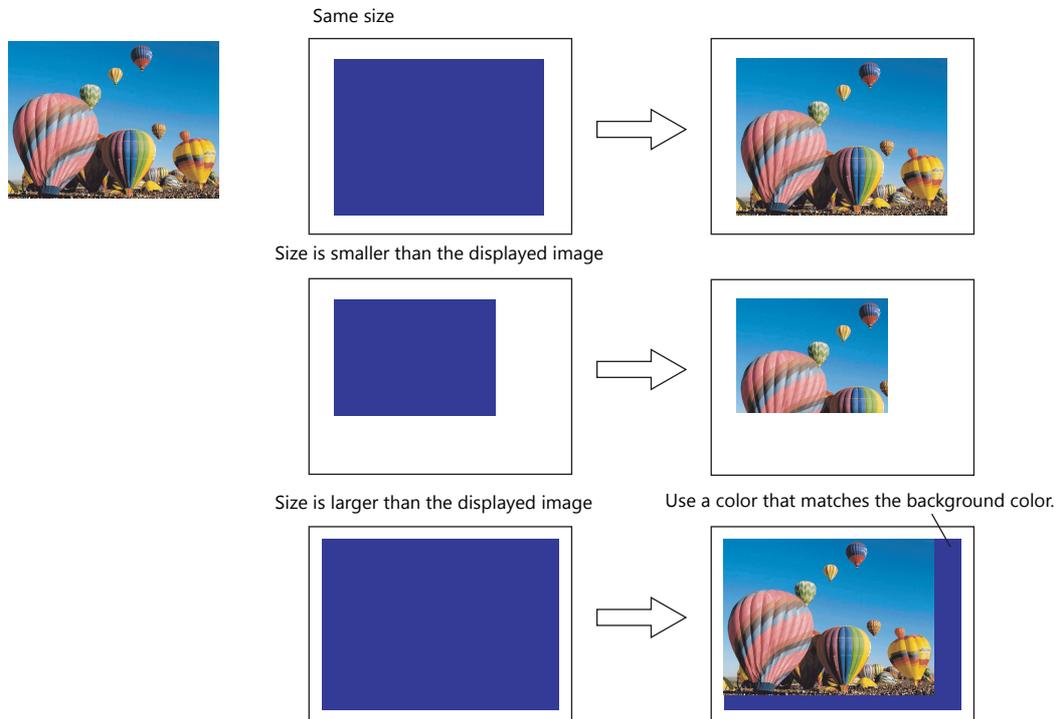
*1 Display example



*2 Display example

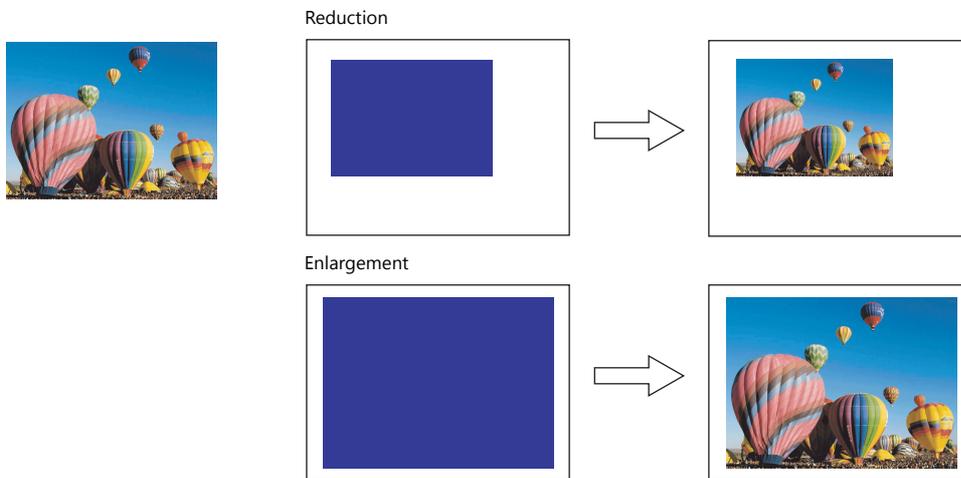
- Checkbox: unselected

The image is displayed at its original size with respect to the top left corner of the display area. If the JPEG image is larger than the display area, the part of the image outside the display area is not shown. Note that the color of the display area is visible when the JPEG image is smaller than the display area. It is recommended that users match the display area color with the background color of the image.

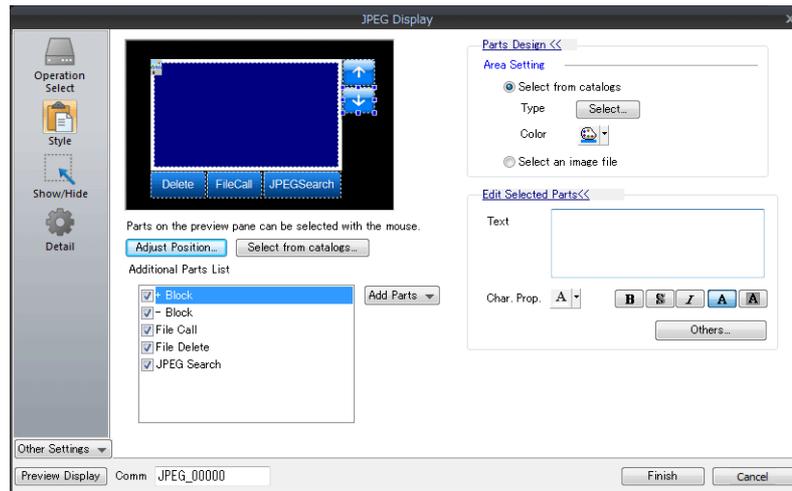


- Checkbox: selected

The image is enlarged or reduced with respect to the top left corner of the display area. The image is enlarged or reduced using the same factor for width and length.



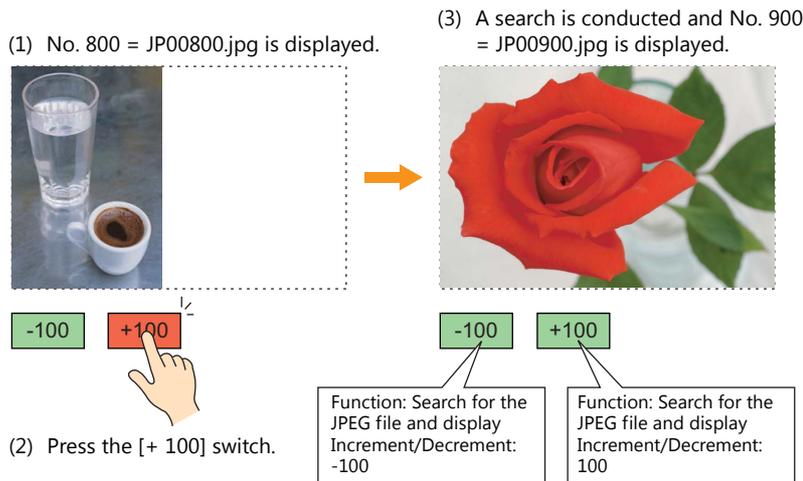
Style



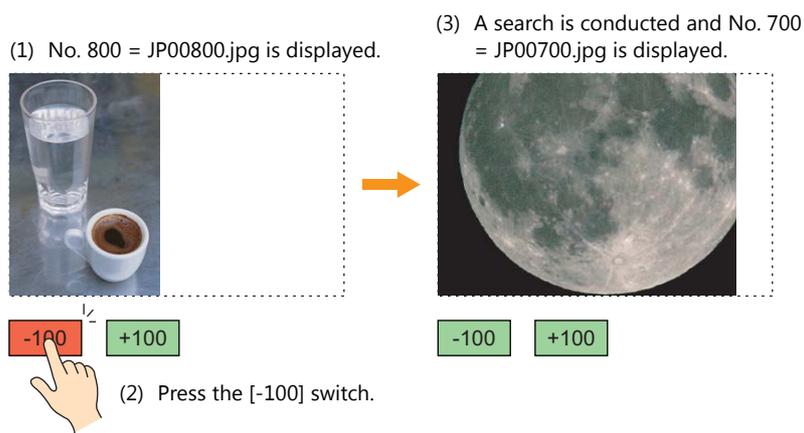
Item	Description	Target file
Additional Parts List	Displays a list of JPEG display switches. Parts can be added to the list using the [Add Parts] button.	
+ Block	Display the JPEG file corresponding to the next file number.	JPxxxx.jpg
- Block	Display the JPEG file corresponding to the previous file number.	VDxxxx.jpg
File Call	Load the JPEG file corresponding to the specified file number.	
File Delete	Delete the JPEG file that is currently displayed.	VDxxxx.jpg
JPEG Search	Set an increment or decrement value to use to search for and display a JPEG file *1.	JPxxxx.jpg VDxxxx.jpg
Adjust Position	Displays the window for adjusting the placement position of each part. The size of parts can also be changed.	
Select from catalogs	Set the part design from the catalog.	
Parts Design	Set the design and color of parts.	
Edit Selected Parts	Configure the part selected in the [Additional Parts List] or preview pane.	

*1 Display example

- When the [+100] switch is pressed while file No. 800 is displayed, a search is conducted for file No. 900 or later and the file is displayed. When a search has been conducted to No. 32767, it is continued moving back to No. 0.



- When the [-100] switch is pressed while file No. 800 is displayed, a search is conducted for file No. 700 or prior and the file is displayed. When a search has been conducted to No. 0, it is continued moving back to No. 32767.

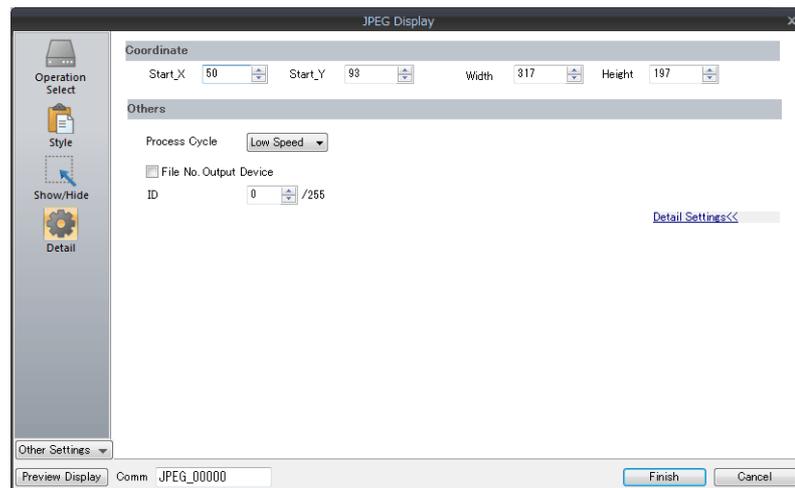


Show/Hide

Set the show and hide settings of graphic items.

For details, refer to "14 Item Shown/Hide Function" in the V9 Series Reference Manual 1.

Detail



Item	Description	
Coordinate	Start X/Start Y	Set the placement position and size of the display area.
	Width/Height *1	
Others	Process Cycle	Set the cycle for the V9 series to read PLC data.
	File No. Output Device	Output the file number of the currently displayed image.
	ID	Set an ID number.

1.2.3 JPEG File Location

The JPEG display function loads and displays the files in the following location.

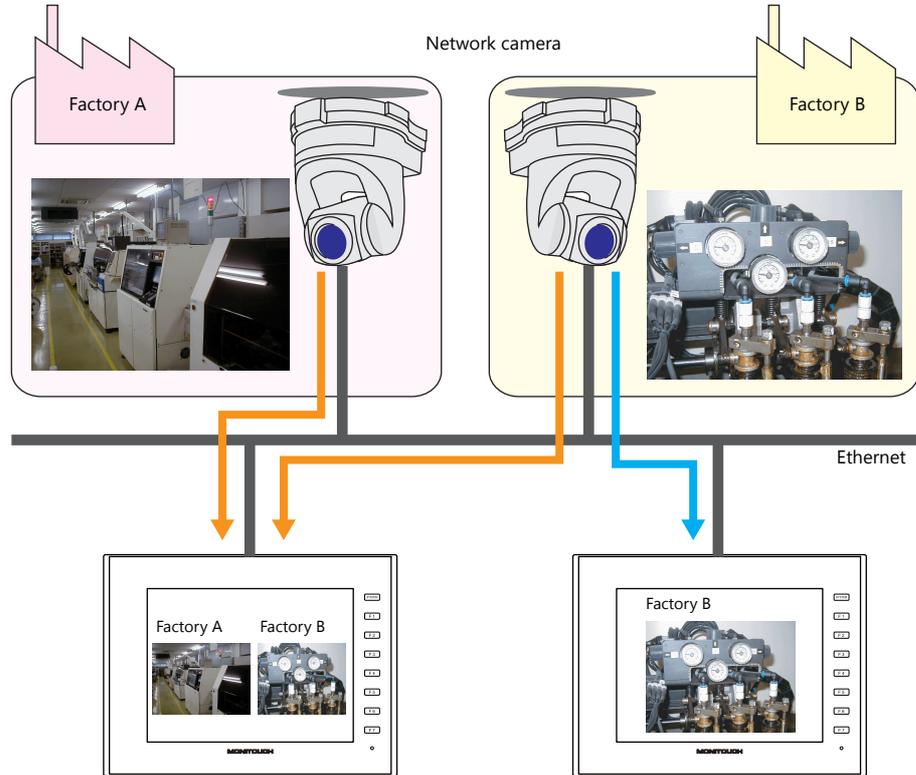
Display Target	Filenames	File Location
JPEG	JPxxxxx.jpg (xxxxx: 00000 - 32767) xxxxxxx.jpg (maximum of 64 one-byte numerals or uppercase alphabetic characters)	(access folder)\JPEG folder
Video Snap	VDxxxxx.jpg (xxxxx: 00000 - 32767)	(access folder)\SNAP folder

1.3 Network Camera

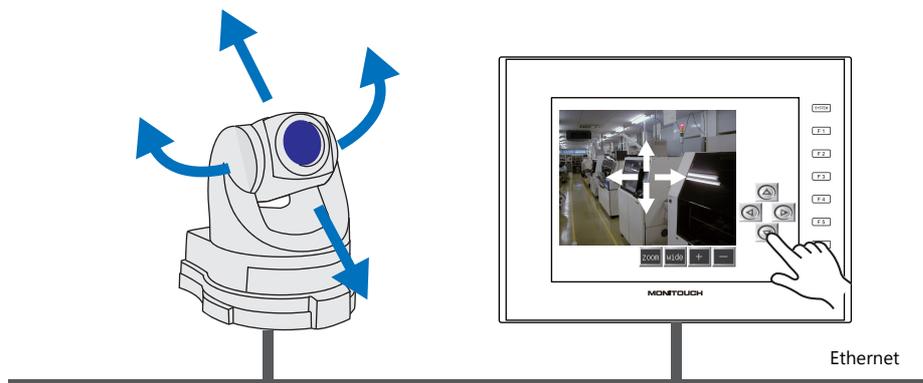
1.3.1 Overview

- Images from network cameras can be displayed on the V9 series unit. All V9 series models support this function because cameras are connected using an Ethernet connection.
- Up to four camera images can be displayed simultaneously using both the screen and overlaps. When a fifth camera image is displayed, the display of the oldest area in the placement order is stopped.

Example: Monitoring the conditions in the factory



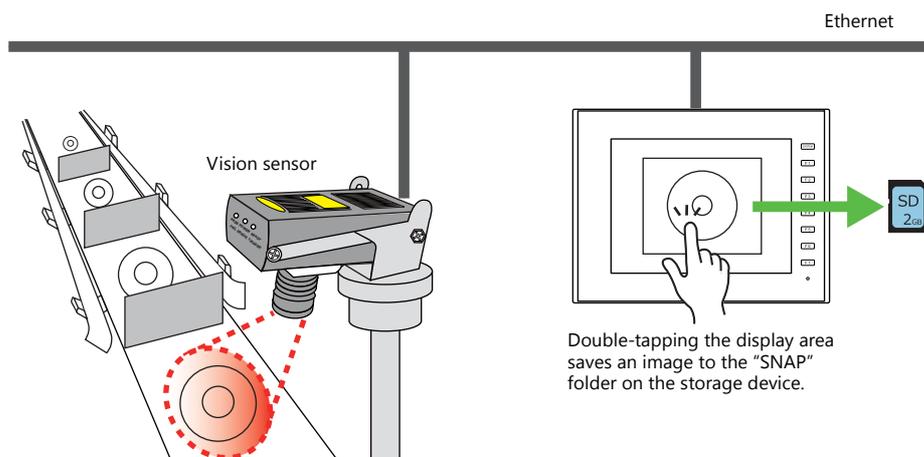
- Camera operation
Using a command device memory or an operation switch on the screen allows network cameras to be easily controlled from a remote location.



Note that some network cameras cannot be controlled remotely. See the specifications of your network camera.

- Snapshot function

The currently displayed image can be saved to a storage device as a JPEG file when the bit of a command device memory changes to ON or by double-tapping the display area.



1.3.2 System Requirements

Applicable Models

MONITOUCH Models	Connection Port
V9	LAN (built-in)

Available Network Cameras or Sensors

Manufacturer		Type	Protocol
Axis		MOTION-JPEG (video)	HTTP protocol communication (TCP/IP)
Panasonic	BB series BL series		
BANNER	PresencePLUS P4 OMNI	Bitmap (still image) *1	Dedicated protocol

*1 No image is displayed upon initial connection.

To display an image, sensor memory PI10000-00 (Trigger) must be change from "0" to "1" (leading edge). When accessing sensor memory from the V9 series unit, select [System Setting] → [Hardware Setting] → [Maker: BANNER].

1.3.3 Required Settings

V-SFT Settings

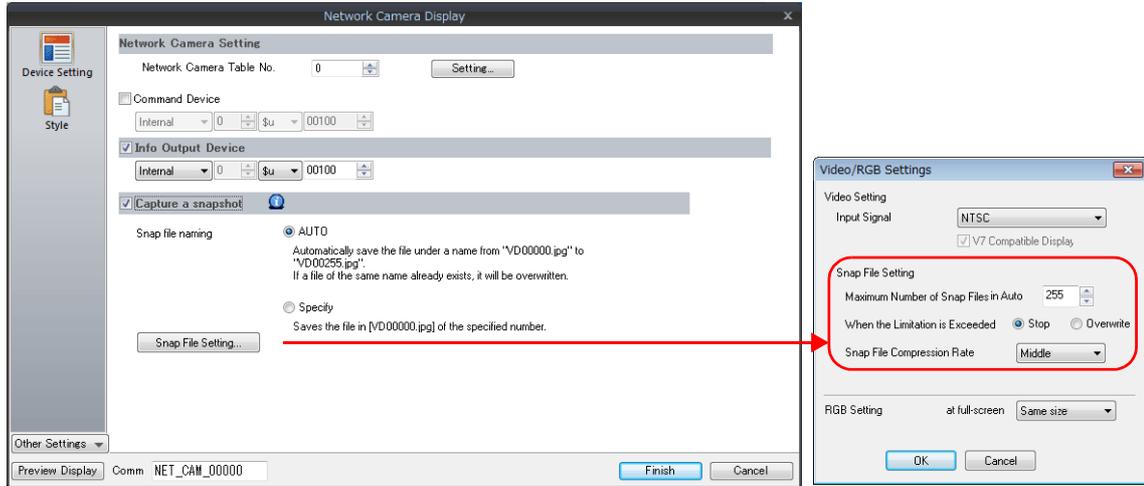
- Settings in network camera display items → ["1.3.4 Detailed Settings" page 1-36](#)

Network Camera Settings

- AXIS models → ["1.3.5 AXIS Settings \(Example: AXIS 214PTZ\)" page 1-40](#)
- Panasonic models → ["1.3.6 Panasonic \(Example: BB-HCM580\)" page 1-45](#)
- BANNER models → ["1.3.7 BANNER \(Example: PresencePLUS P4 OMNI\)" page 1-55](#)

1.3.4 Detailed Settings

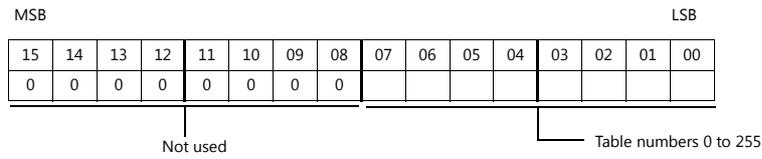
Device Setting



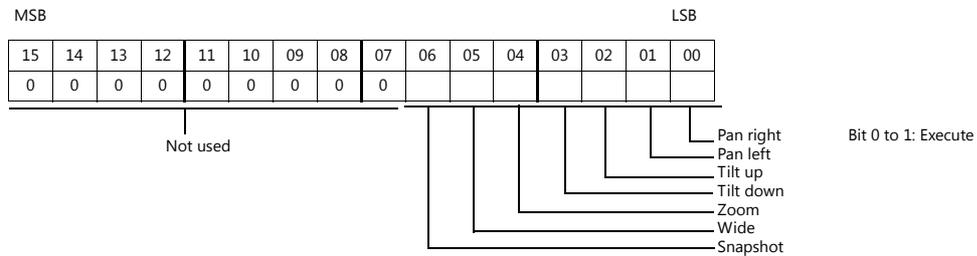
Item	Description																	
Network Camera Setting	Select the network camera specification method.																	
Network Camera Table No.	Select one registered camera in the table. One camera is always displayed.																	
Command Device *1	Select one registered camera in the table using a value stored in a device memory. Three words are used. This method allows switching between multiple camera images. In addition, camera operation can be controlled using a value stored in a device memory.																	
	<table border="1"> <thead> <tr> <th>Memory</th> <th>Description</th> <th>Applicable Models</th> </tr> </thead> <tbody> <tr> <td>n</td> <td>Table number specification</td> <td>AXIS, Panasonic, BANNER</td> </tr> <tr> <td>n+1</td> <td>Camera operation</td> <td>AXIS, Panasonic, BANNER (snapshot only)</td> </tr> <tr> <td>n+2</td> <td>Operation input</td> <td>AXIS</td> </tr> </tbody> </table>	Memory	Description	Applicable Models	n	Table number specification	AXIS, Panasonic, BANNER	n+1	Camera operation	AXIS, Panasonic, BANNER (snapshot only)	n+2	Operation input	AXIS					
Memory	Description	Applicable Models																
n	Table number specification	AXIS, Panasonic, BANNER																
n+1	Camera operation	AXIS, Panasonic, BANNER (snapshot only)																
n+2	Operation input	AXIS																
Setting	Display the [Network Camera Table Setting] screen to perform camera registration. Refer to page 1-38 .																	
Info Output Device	Output the state of the network camera. Four words are used.																	
	<table border="1"> <thead> <tr> <th>Memory</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td rowspan="4">n</td> <td>Bit 0</td> <td>Connected state 0: Connected 1: Disconnected</td> </tr> <tr> <td>Bit 1</td> <td>Pan angle state 0: Normal 1: Abnormal</td> </tr> <tr> <td>Bit 2</td> <td>Tilt angle state 0: Normal 1: Abnormal</td> </tr> <tr> <td>Bit 3</td> <td>Zoom state 0: Normal 1: Abnormal</td> </tr> <tr> <td>n+1</td> <td>Camera pan angle</td> </tr> <tr> <td>n+2</td> <td>Camera tilt angle</td> </tr> <tr> <td>n+3</td> <td>Zoom position</td> </tr> </tbody> </table>	Memory	Description	n	Bit 0	Connected state 0: Connected 1: Disconnected	Bit 1	Pan angle state 0: Normal 1: Abnormal	Bit 2	Tilt angle state 0: Normal 1: Abnormal	Bit 3	Zoom state 0: Normal 1: Abnormal	n+1	Camera pan angle	n+2	Camera tilt angle	n+3	Zoom position
Memory	Description																	
n	Bit 0	Connected state 0: Connected 1: Disconnected																
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	Bit 2	Tilt angle state 0: Normal 1: Abnormal																
	Bit 3	Zoom state 0: Normal 1: Abnormal																
n+1	Camera pan angle																	
n+2	Camera tilt angle																	
n+3	Zoom position																	
Capture a snapshot *2 *3	Save the displayed image as a JPEG file by double-tapping on the display area. Save location: (storage device)\EX0000\SNAP																	
Snap file naming	Set the filename to use when saving a snapshot. AUTO (1 to 255): Save using sequential numbers from "VD00000.jpg". Set the action to perform when the maximum number of snapshots is reached using [Snap File Setting]. Specify (0 to 32767) Save using the specified file number. If the specified file already exists, it is overwritten.																	
Snap File Setting	Configure snapshot file settings.																	

*1 Command device memory

- n: Table number specification



- n+1: Camera operation

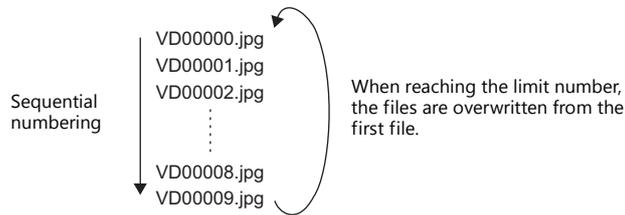


- n+2: Operation input (AXIS only)

Memory	Operation	Setting Value	Remarks
n+2	Up/down/left/right	Angle: -18000 to 18000 (±180 degrees)	Effective to the first decimal place
	Zoom in/zoom out	Magnification: 0 or higher	Depends on the maximum value in the camera specifications.
	Snapshot	Not used	

*2 Setting Examples

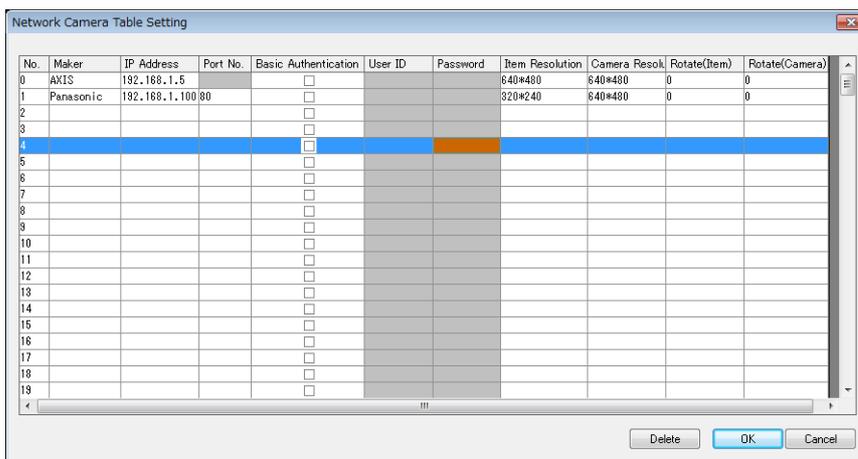
- When [Snap file naming] is "AUTO", [Maximum Number of Saves] is "10", and [Action when Limitation is Exceeded] is "Overwrite" Snapshot files ranging from "VD00000.jpg" to "VD00009.jpg" are created in sequence. When the file "VD00009.jpg" is created, the previous files will be overwritten from "VD00000.jpg".



- When [Snap file naming] is "Specify" and [No. to Assign to Filename] is "30" The file "VD00030.jpg" is created and always overwritten.
- *3 When screen data contains both [AUTO] and [Specify] selected for [Snap file naming], enter a value for [Specify] in the 255 to 32767 range so that files created according to [AUTO] do not overwrite the file created according to [Specify]. When [AUTO] is selected, the file number saved last is stored in system memory address \$s932.

Network camera table settings

Register the IP address, port number, and other information regarding network cameras.



Item	Description									
Maker	Select the manufacturer of the network camera. AXIS, Panasonic, BANNER									
IP Address ^{*1}	Specify the IP address of the network camera.									
Port No.	Specify the port number of the network camera. 1 - 65535									
	<table border="1"> <thead> <tr> <th>Maker</th> <th>Default</th> <th>Remarks</th> </tr> </thead> <tbody> <tr> <td>Panasonic</td> <td>80</td> <td></td> </tr> <tr> <td>BANNER</td> <td>20000</td> <td>Sensor range: 20000 to 20009</td> </tr> </tbody> </table>	Maker	Default	Remarks	Panasonic	80		BANNER	20000	Sensor range: 20000 to 20009
Maker	Default	Remarks								
Panasonic	80									
BANNER	20000	Sensor range: 20000 to 20009								
Basic Authentication ^{*2}	Select this checkbox to use basic authentication for the network camera. This enables user ID and password settings. For details, refer to your network camera settings.									
User ID	Enter the user name and password registered in the network camera settings. For details, refer to your network camera settings.									
Password										
Item Resolution ^{*3}	Set the size of the display area. The specified area size is automatically updated to the screen. 160*120, 192*144, 320*240, 640*480 The display area is automatically enlarged or reduced on the V9 series unit when a resolution that differs from [Camera Resolution] is selected.									
Camera Resolution	Set the output resolution of the network camera. To improve performance, set a lower resolution.									
Rotate (Item)	Rotate the display area on the V9 series unit.									
Rotate (Camera) ^{*4}	Set the rotation angle of the image output from the network camera. Select an angle appropriate for the mounting orientation of the network camera. 0, 90, 180, 270									

*1 For details on setting IP addresses, refer to the user's manual of the network camera.

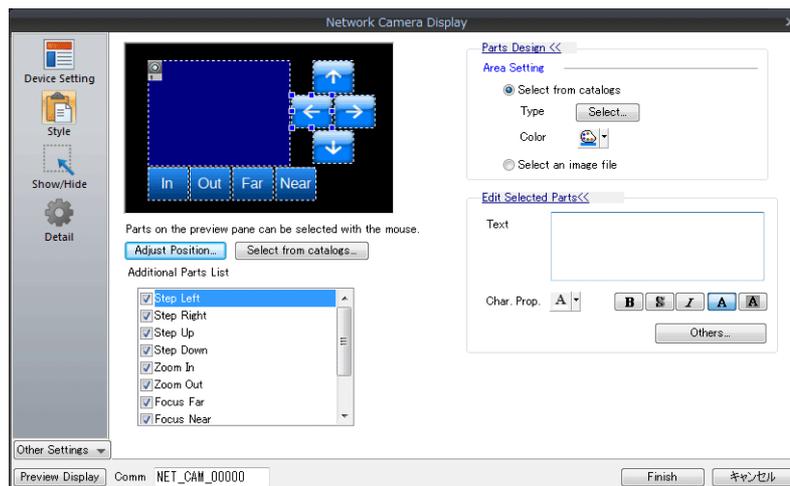
Manufacturer	Model	Remarks
Axis	214PTZ	Use AXIS's dedicated tool when changing the default IP address. Default: 192.168.0.90
Panasonic	BB-HCM580	Use the CD-ROM provided with the network camera when changing the default IP address. Default: Automatic setup
BANNER	PresencePLUS P4 OMNI	

*2 BANNER: No configuration required

*3 AXIS, BANNER: Cannot set to 192 * 144

*4 Panasonic, BANNER: Cannot set to 90, 270

Style



Item	Description
Additional Parts List	Select an operation switch. *1 *2
Step Left	Pan the camera left.
Step Right	Pan the camera right.
Step Up	Tilt the camera up.
Step Down	Tilt the camera down.
Zoom In	Zoom in on the camera image.
Zoom Out	Zoom out of the camera image.
Focus Far	Focus the camera on a distant point.
Focus Near	Focus the camera on a nearby point.
Pause	Pause video display.
Restart	Resume video display.
Parts Design	Set the design and color of parts.
Edit Selected Parts	Configure the part selected in the [Additional Parts List] or preview pane.
Adjust Position	Displays the window for adjusting the placement position of each part. The size of parts can also be changed.

*1 Note that some network cameras cannot be controlled remotely. See your network camera specifications. (No BANNER products support these functions.)

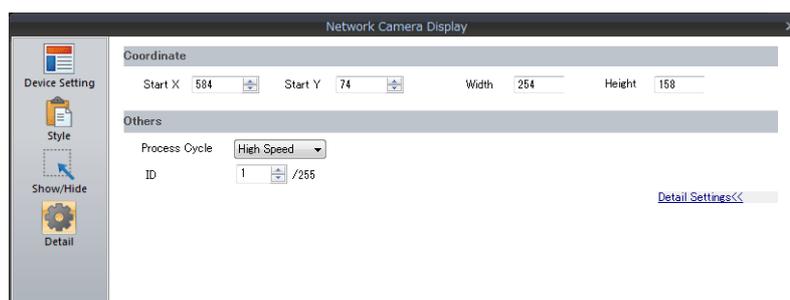
*2 If the [Delay] → [ON repeat] setting is configured in the switch settings window, the function performed by the switch is repeated while the switch is held down.

Show/Hide

Set the show and hide settings of JPEG display items.

Refer to "14 Item Shown/Hide Function" in the V9 Series Reference Manual 1.

Detail



Item	Description	
Coordinate	Start X/Start Y	Specify the coordinates of the display area.
Other	Process Cycle	Set the cycle that the V9 series unit accesses the camera.
	ID	Set an ID number.

1.3.5 AXIS Settings (Example: AXIS 214PTZ)

Access from the Computer

1. Start up Microsoft Internet Explorer on your computer.
2. Enter the IP address of the network camera in the address field.

http://xxx.xxx.xxx.xxx

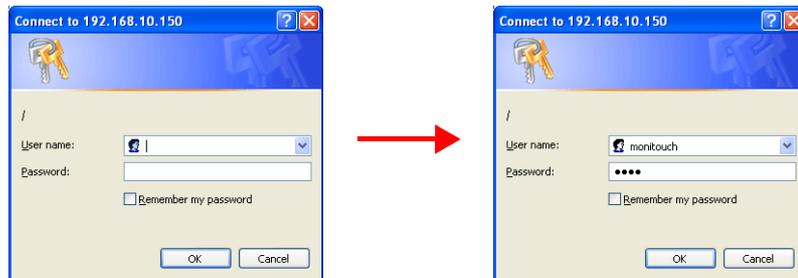
Network camera IP address



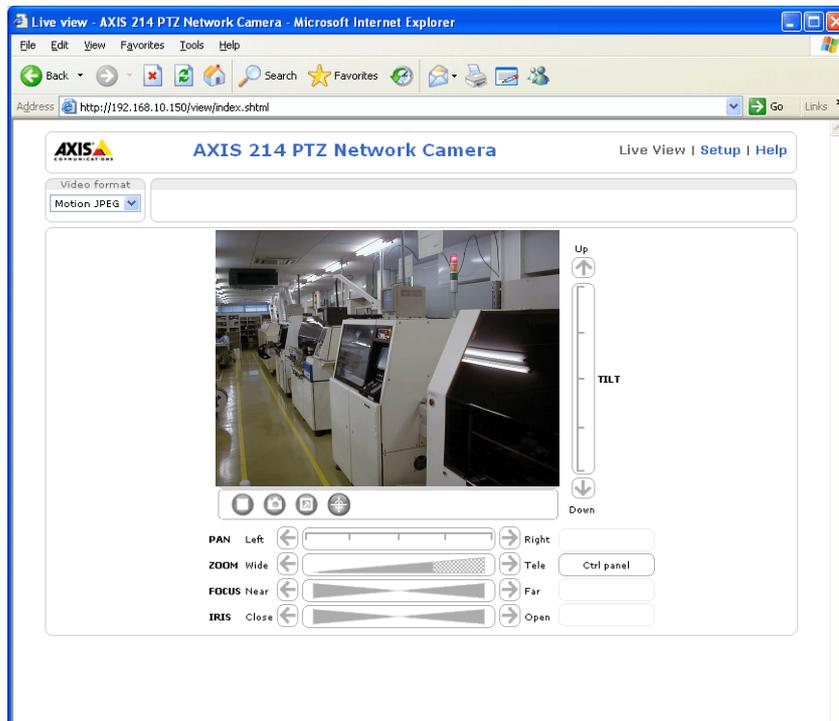
3. The following dialog is displayed when using basic authentication. Enter a registered user name and password, and click the [OK] button.

If basic authentication is not used, proceed to step 4.

For details on basic authentication, refer to [page 1-42](#).



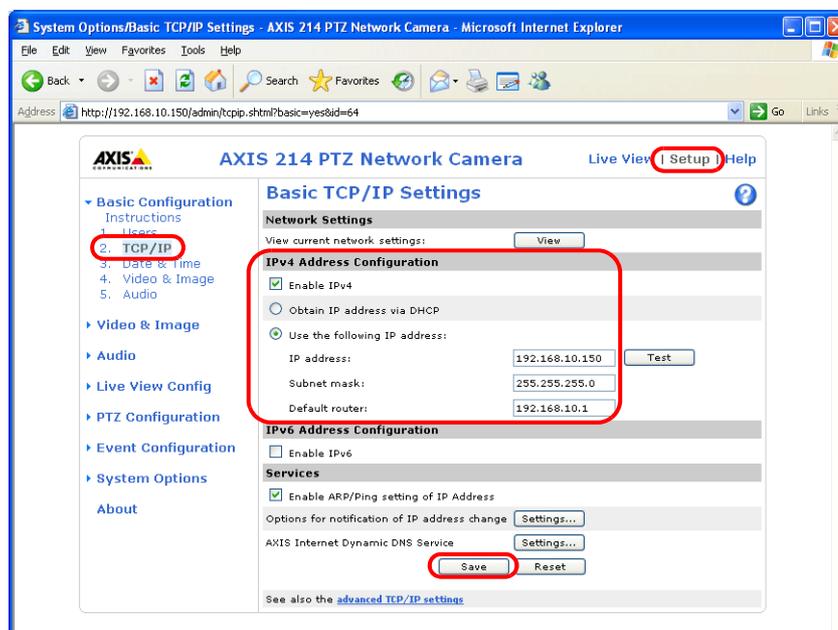
4. The [Live view] window is displayed.



Network Camera Settings

Checking and changing the IP address

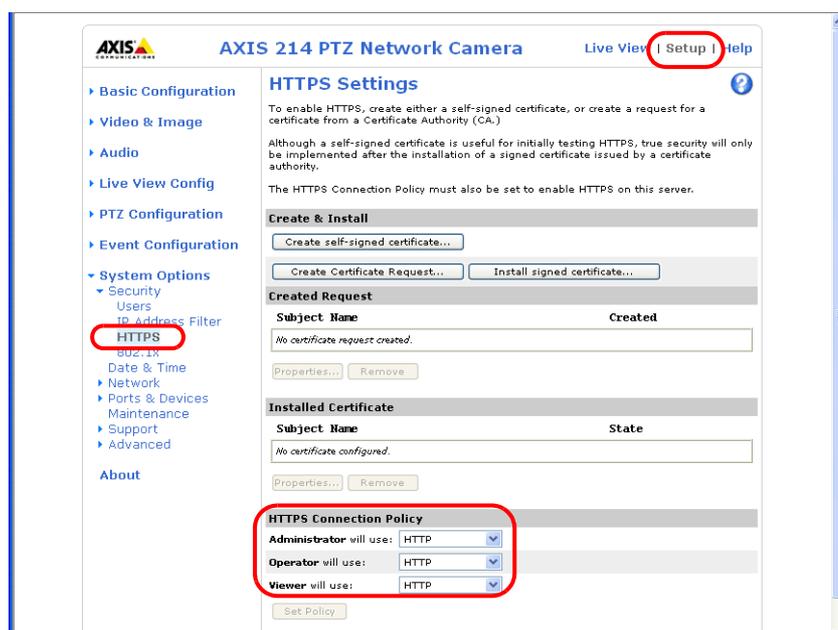
1. Display the [Setup] window.
 - * If basic authentication is not used, pressing the [Setup] button displays the dialog box shown in step 3 of "Access from the Computer" page 1-40. Enter a user name and password.
2. On the menu on the left of the screen, click [Basic Configuration Instructions] → [2. TCP/IP].
3. Check and change the network camera IP address, subnet mask, and gateway settings as required.



4. Click the [Save] button to save any changes.

HTTP settings

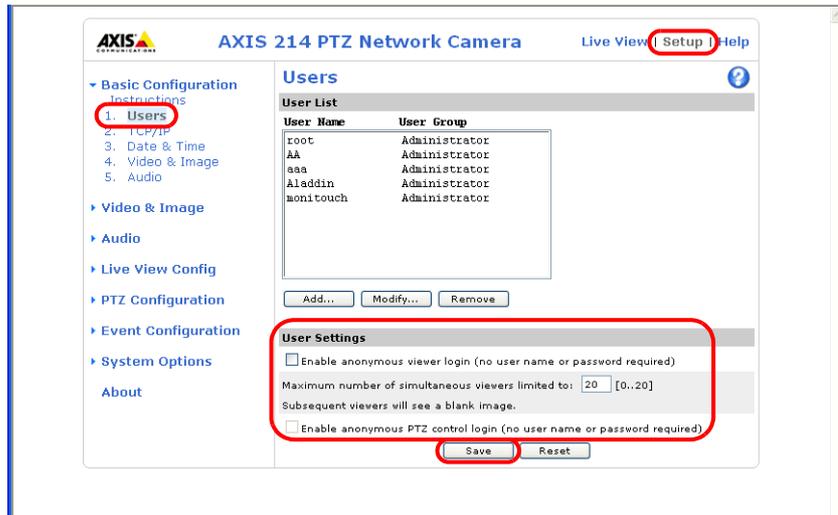
1. Display the [Setup] window.
 - * If basic authentication is not used, pressing the [Setup] button displays the dialog box shown in step 3 of "Access from the Computer" page 1-40. Enter a user name and password.
2. On the menu on the left of the screen, click [System Options] → [Security] → [HTTPS].
3. Select "HTTP" for the options under [HTTPS Connection Policy]. ("HTTP" is selected as default.)



Basic authentication settings

Basic authentication is provided to permit or prohibit access from guest users.
Use basic authentication to prohibit access from guest users.

1. Display the [Setup] window.
 - * If basic authentication is not used, pressing the [Setup] button displays the dialog box shown in step 3 of ["Access from the Computer"](#) page 1-40. Enter a user name and password.
2. On the menu on the left of the screen, click [Basic Configuration Instructions] → [Users].
3. If the checkmarks are not selected for the options under [User Settings], basic authentication is required for the network camera.



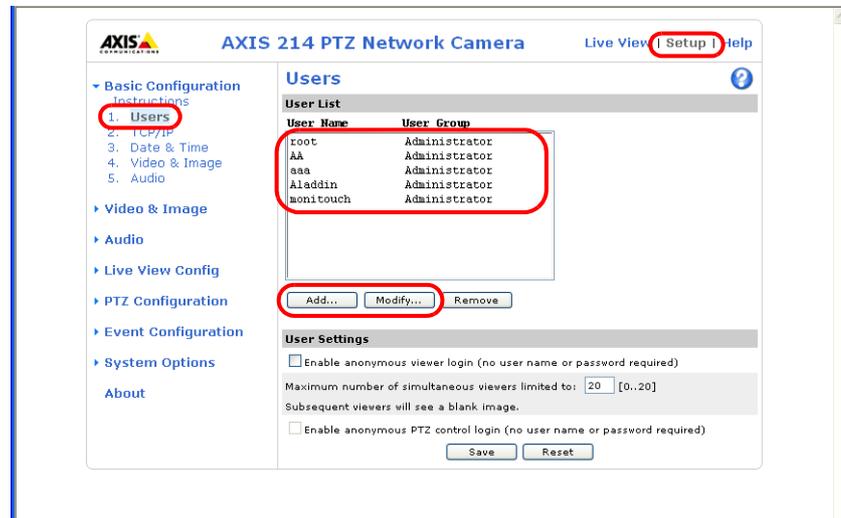
- * When using basic authentication, make the following settings in the V-SFT software. As shown below, select the [Basic Authentication] checkbox and enter a registered user ID and password in the [Network Camera Table Setting] window. For details on registered user names and passwords, refer to ["Checking and registering user names and passwords"](#) page 1-43.

No.	Maker	IP Address	Port No.	Basic Authentica	User ID	Password	Item Resolution	Camera Resolution	Rotate(Item)	Rotate(Camera)
0	AXIS	192.168.1.5		<input checked="" type="checkbox"/>	monitouch	*****	40#480	640#480	0	0
1				<input type="checkbox"/>						
2				<input type="checkbox"/>						
3				<input type="checkbox"/>						
4				<input type="checkbox"/>						
5				<input type="checkbox"/>						
6				<input type="checkbox"/>						
7				<input type="checkbox"/>						
8				<input type="checkbox"/>						
9				<input type="checkbox"/>						
10				<input type="checkbox"/>						
11				<input type="checkbox"/>						
12				<input type="checkbox"/>						
13				<input type="checkbox"/>						
14				<input type="checkbox"/>						
15				<input type="checkbox"/>						
16				<input type="checkbox"/>						
17				<input type="checkbox"/>						
18				<input type="checkbox"/>						
19				<input type="checkbox"/>						

4. If basic authentication is not necessary, select the [Enable anonymous viewer login (no user name or password required)] checkbox under [User Settings] and click the [Save] button.
 - * When performing camera lens operations from the V9 series unit or PLC, select the [Enable anonymous PTZ control login (no user name or password required)] checkbox and click the [Save] button. For details, refer to ["Operating the Camera Lens from the V9 Series Unit"](#) page 1-44.

Checking and registering user names and passwords

1. Display the [Setup] window.
 - * If basic authentication is not used, pressing the [Setup] button displays the dialog box shown in step 3 of “Access from the Computer” page 1-45. Enter a user name and password.
2. On the menu on the left of the screen, click [Basic Configuration Instructions] → [Users].
3. If users have been registered, they are displayed under [User List].
4. To add a new user, click the [Add...] button. To modify an existing user, click the [Modify...] button.



5. The [User Setup] window is displayed.
Enter the desired name for [User name] and enter the same password for [Password] and [Confirm password].



Check [Administrator] for [User group].

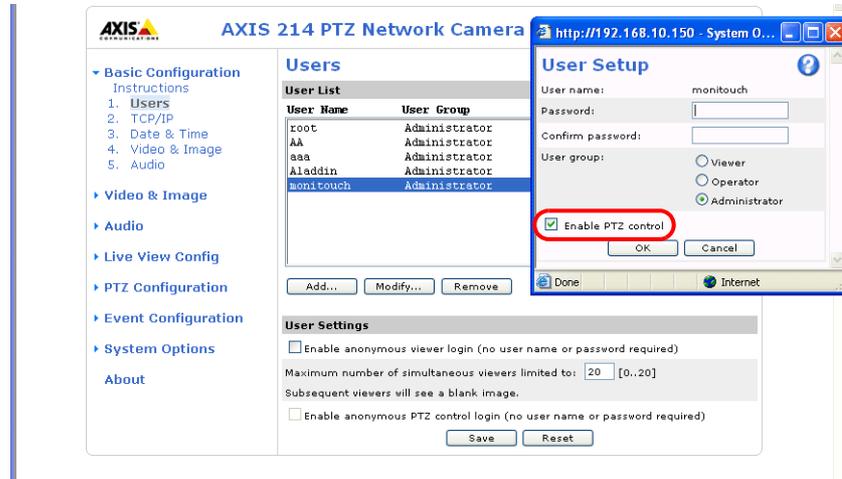
6. Click [OK] to accept the settings.

Operating the Camera Lens from the V9 Series Unit

The camera lens can be operated using switches and command device memory addresses on the V9 series unit.

With basic authentication

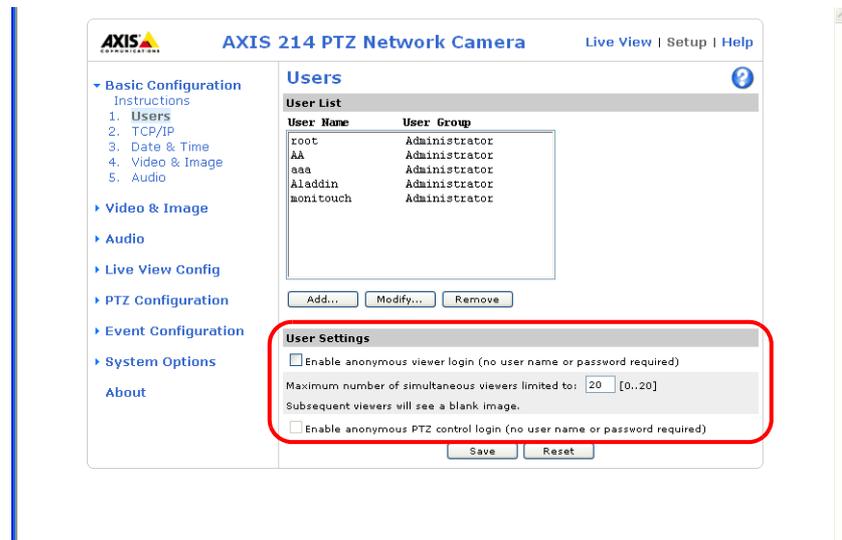
Display the [User Setup] window* and select the [Enable PTZ control] checkbox.



* For details on how to display the [User Setup] window, refer to [“Checking and registering user names and passwords” page 1-43](#).

Without basic authentication

Display the [Users] window*. Select both checkboxes under [User Settings] and click the [Save] button.



* For details on how to display the [Users] window, refer to [“Basic authentication settings” page 1-42](#).

1.3.6 Panasonic (Example: BB-HCM580)

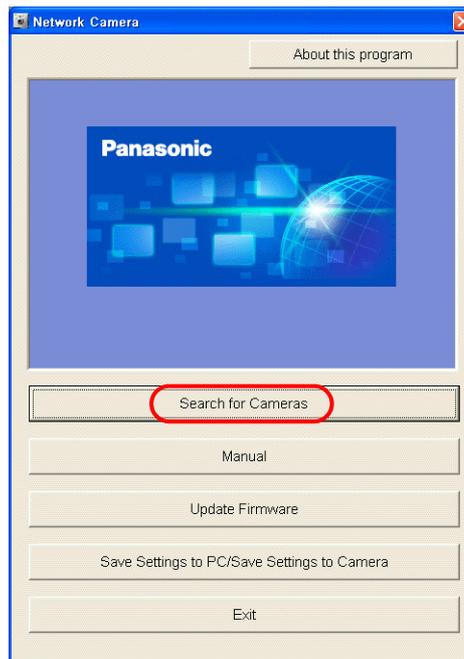
Access from the Computer

This network camera can be accessed from a computer using the CD-ROM included with the network camera or via a web browser.

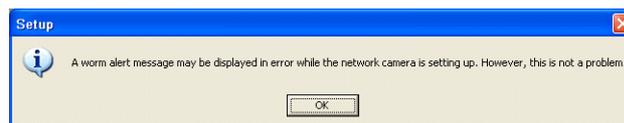
* Select the method using the CD-ROM when setting up the network camera for the first time.

CD-ROM

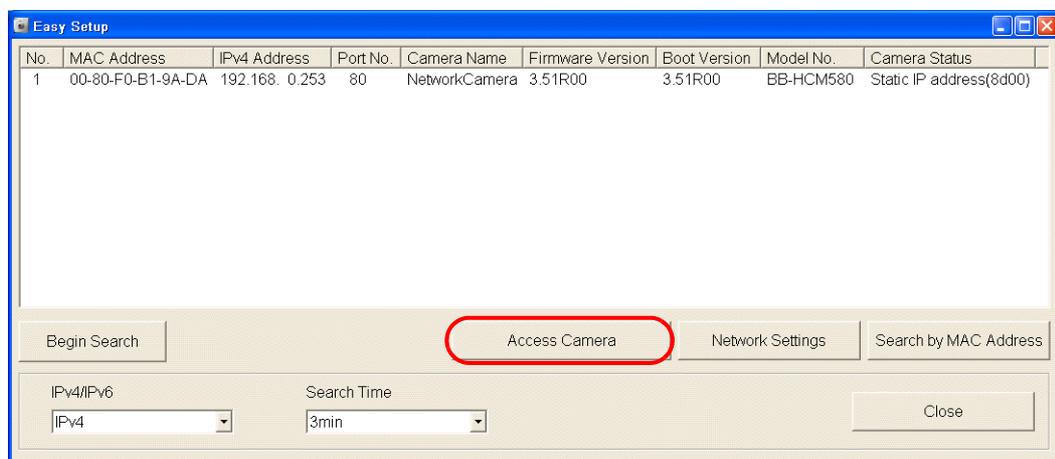
1. Load the CD-ROM included with the network camera into your computer.
2. The [Network Camera] window is displayed. Click [Search for Cameras] to search for the network camera connected to the computer.



3. If the following message appears, click [OK].



4. When the target network camera is found, information regarding the network camera, such as MAC address and IP address, is displayed in the [Easy Setup] window. Click [Access Camera] *.



* If the IP address of the network camera does not exist in the network group of the computer, click the [Network Settings] button. In the window to be displayed, change the IP address of the network camera so that it belongs to the network group of the computer.

5. When connecting a factory-default network camera to your computer, the [Initial Authentication Setting] screen appears. Register a user name and password for the administrator. (If a user is already registered, proceed to step 6.) For details, refer to the user's manual of the network camera.



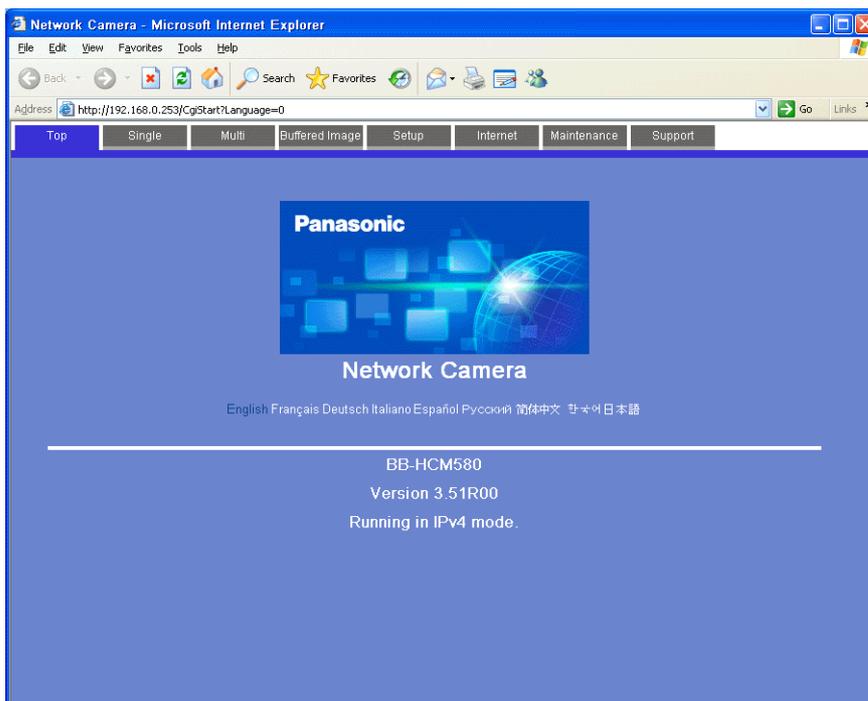
The password registered in this step is required for access to the network camera. Take appropriate measures to avoid forgetting the password.



6. The authentication dialog box is displayed. Enter an administrator-level user name and password and click [OK].
 - * When [Permit access from guest users] is checked on the [Administrator] page, the [Top] tab window is displayed. Click the [Login] tab. For details, refer to "Authentication settings" page 1-49.



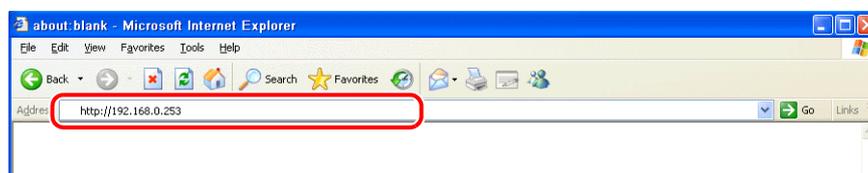
7. The [Top] tab window is displayed. (This tab window is displayed when login authentication is performed with an administrator-level user name and password. When a general or guest user logs in, the menus in the displayed tab window vary slightly.)



Web browser (Microsoft Internet Explorer)

1. Start up Microsoft Internet Explorer on your computer.
2. Enter the IP address and port number of the network camera in the address field.
 - * When using the factory-default port number of 80, the entry of the port number may be omitted.

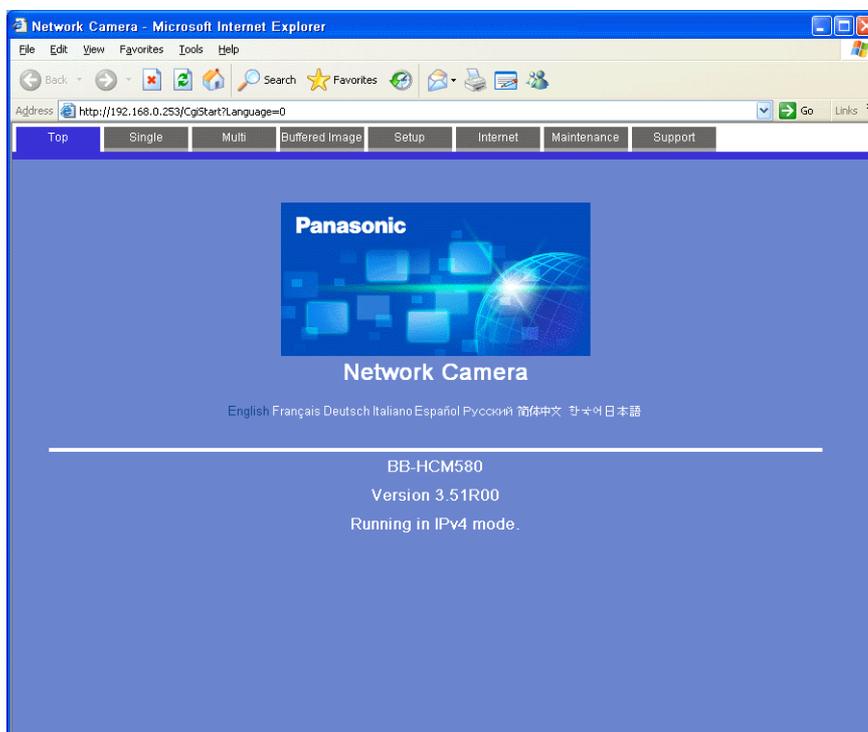
http://xxx.xxx.xxx.xxx:Port number/
 └──────────────────┬──────────────────
 Network camera IP address



3. The authentication dialog box is displayed. Enter an administrator-level user name and password and click [OK].
 - * When [Permit access from guest users] is checked on the [Administrator] page, the [Top] tab window is displayed. Click the [Login] tab. For details, refer to "Authentication settings" page 1-49.



4. The [Top] tab window is displayed.
 (This tab window is displayed when login authentication is performed with an administrator-level user name and password. When a general or guest user logs in, the menus in the displayed tab window vary slightly.)

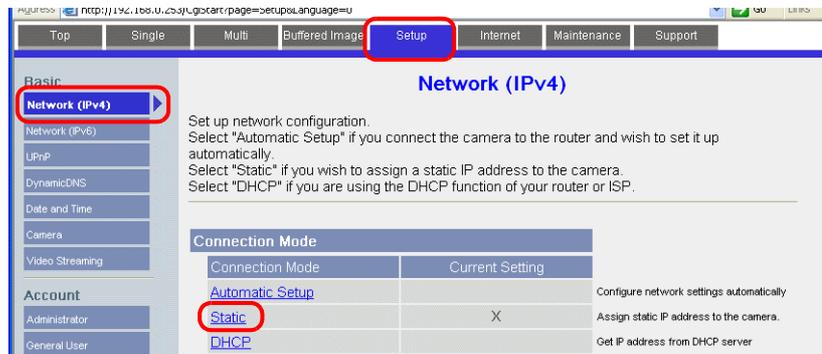


Network Camera Settings

Checking and changing the IP address

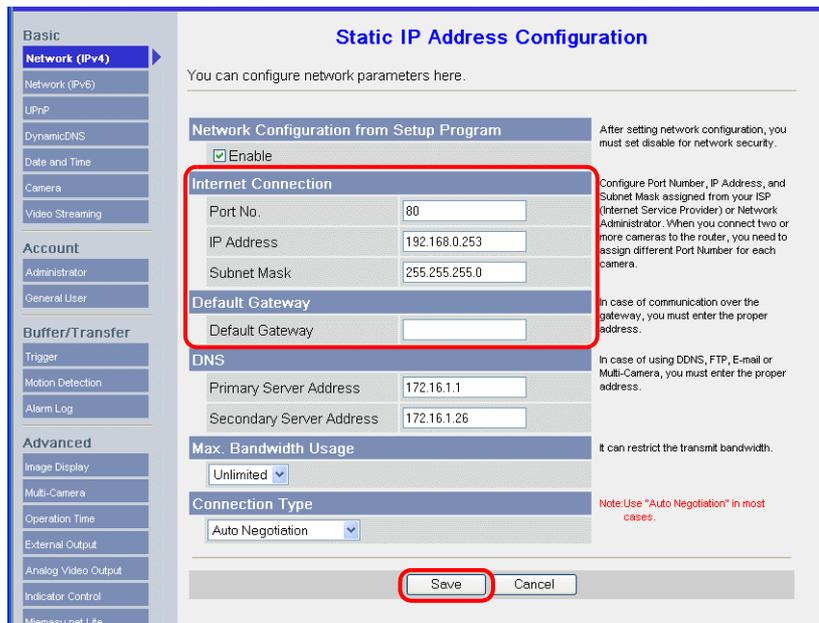
* Login with an administrator-level user name and password is required to proceed to the following tab window settings.

1. Click the [Setup] tab.
2. Check that [Network (IPv4)] is selected in the [Basic] menu at the left of the window. Next, go to the [Connection Mode] area and click [Static].



3. Configure the network camera port number*, IP address, subnet mask, and gateway settings.

* The default port number is 80. Enter a port number between 1 and 65535.

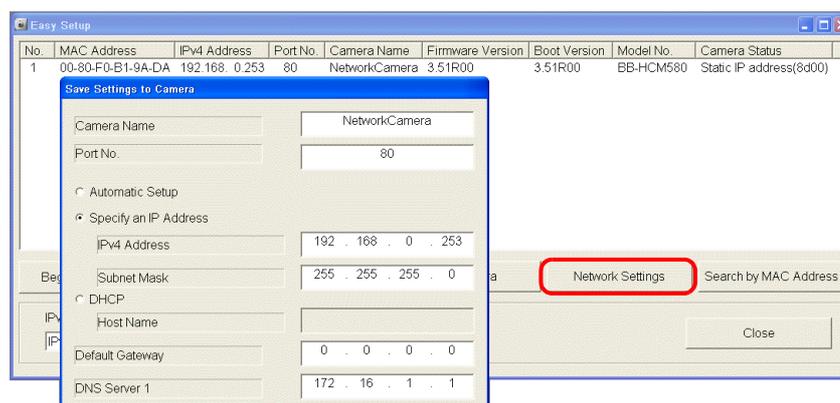


* Also enter the port number for [Port No.] in the [Network Camera Table Settings] window in V-SFT. Refer to page 1-38.

No.	Maker	IP Address	Port No.	Basic Authenticali	User ID	Password	Item Resolution	Camera Resolution	Rotate(Item)	Rotate(Camera)
0	Panasonic	192.168.1.10	80	<input type="checkbox"/>			640*480	640*480	0	0
1				<input type="checkbox"/>						
2				<input type="checkbox"/>						
3				<input type="checkbox"/>						
4				<input type="checkbox"/>						
5				<input type="checkbox"/>						
6				<input type="checkbox"/>						
7				<input type="checkbox"/>						
8				<input type="checkbox"/>						
9				<input type="checkbox"/>						
10				<input type="checkbox"/>						
11				<input type="checkbox"/>						
12				<input type="checkbox"/>						
13				<input type="checkbox"/>						
14				<input type="checkbox"/>						
15				<input type="checkbox"/>						
16				<input type="checkbox"/>						
17				<input type="checkbox"/>						
18				<input type="checkbox"/>						
19				<input type="checkbox"/>						

4. Click [Save] to save the settings made in the previous steps.

The IP address can be checked or changed using the CD-ROM included with network camera or via the [Network Settings] button in the [Easy Setup] window.

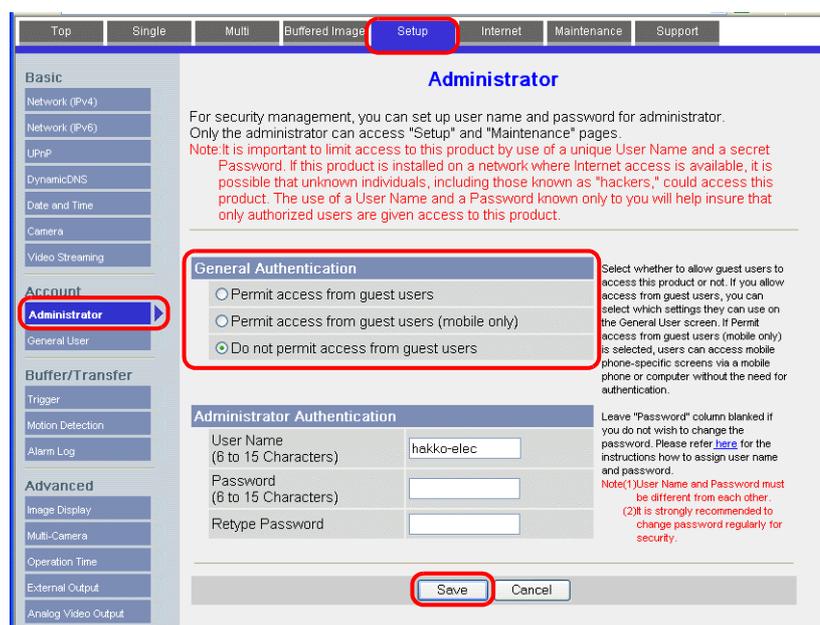


Authentication settings

Authentication settings are provided to permit or prohibit access from guest users. These settings disallow access to guest users.

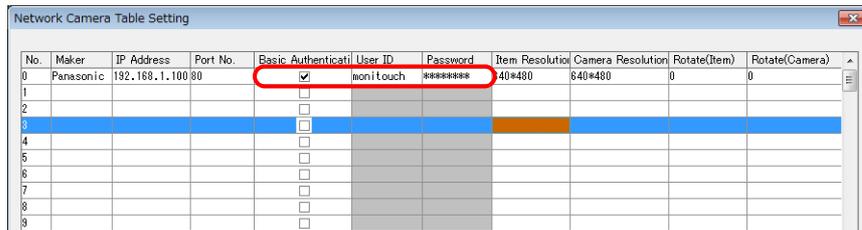
* **Login with an administrator-level user name and password is required to proceed to the following tab window settings.**

1. Click the [Setup] tab.
2. Click [Administrator] at the left of the screen.
3. In the [General Authentication] area, select either [Permit access from guest users] or [Do not permit access from guest users].



Permit access from guest users	This option allows anyone to access the network camera without a registered user name and password.
Do not permit access from guest users	Whenever access to the network camera is attempted, the authentication dialog box appears. Access is granted to the network camera by entering a registered user name and password.

- * When the [Do not permit access from guest users] checkbox is selected, configure the following settings in the V-SFT software. As shown below, select the [Basic Authentication] checkbox and enter a registered user ID and password in the [Network Camera Table Setting] window. For details on registered user names and passwords, refer to "Checking and registering user names and passwords" on P 18-27.



No.	Maker	IP Address	Port No.	Basic Authentication	User ID	Password	Item Resolution	Camera Resolution	Rotate(Item)	Rotate(Camera)
0	Panasonic	192.168.1.100	80	<input checked="" type="checkbox"/>	monitouch	*****	40*480	640*480	0	0
1				<input type="checkbox"/>						
2				<input type="checkbox"/>						
3				<input type="checkbox"/>						
4				<input type="checkbox"/>						
5				<input type="checkbox"/>						
6				<input type="checkbox"/>						
7				<input type="checkbox"/>						
8				<input type="checkbox"/>						
9				<input type="checkbox"/>						

4. Click [Save] to save the settings made in the previous steps.

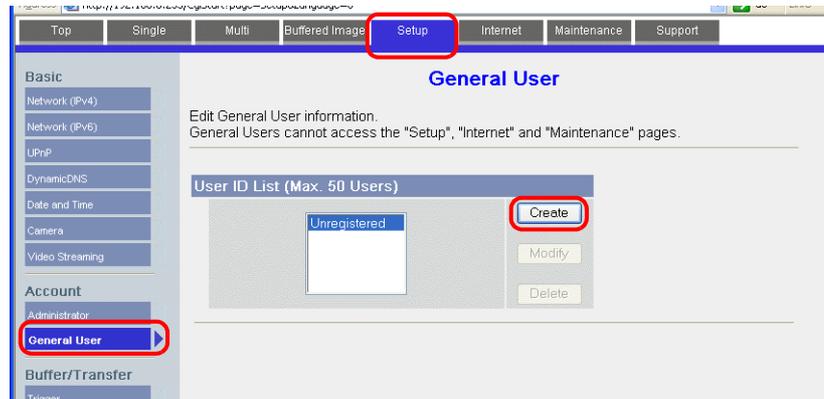
Registering and changing the settings of general users

When users other than the administrator need access to the network camera, general user registration is required.

- * **Login with an administrator-level user name and password is required to proceed to the following tab window settings.**

New general user registration

1. Click the [Setup] tab.
2. Click [General User] on the left of the screen.
3. Click [Create].



4. The [New General User Registration] page is displayed. Configure the settings as specified below.



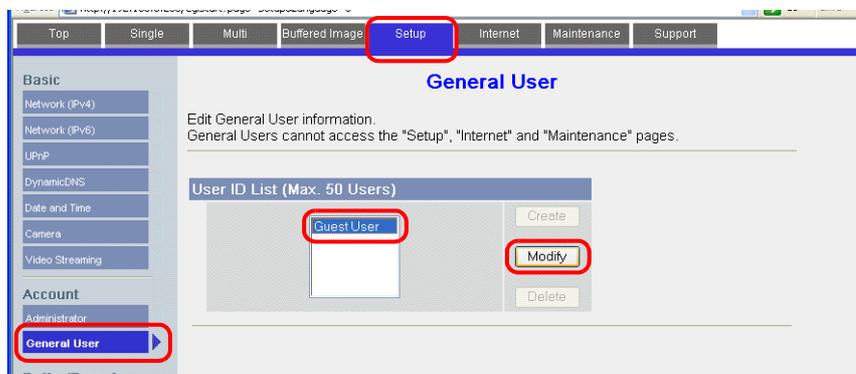
The password registered in this step is required for access to the network camera. Take appropriate measures to avoid forgetting the password.

5. Click [Save] to save the settings made in the previous steps.

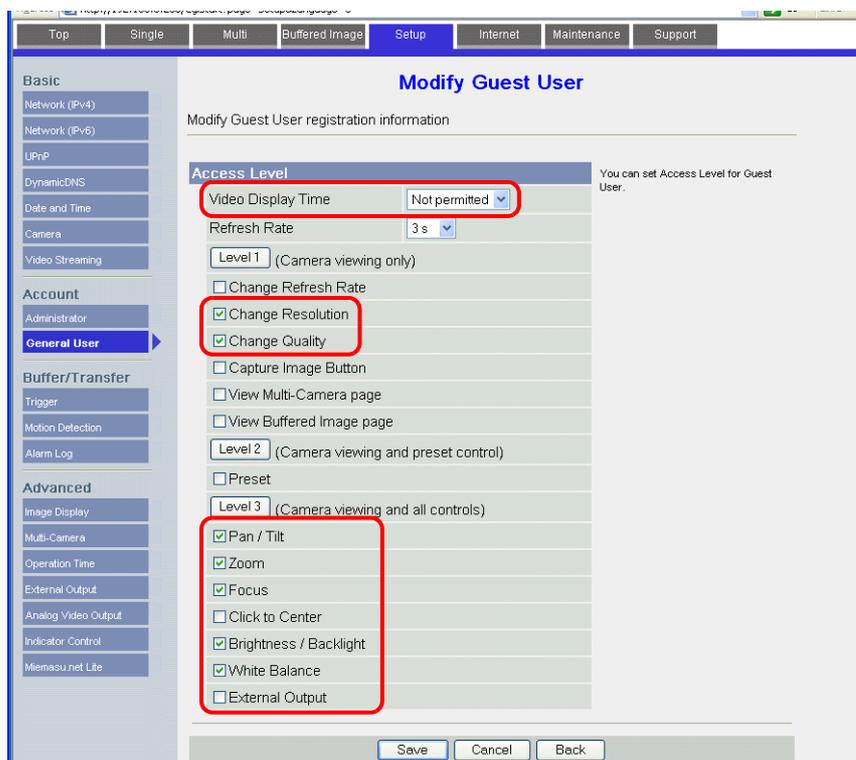
Changing guest user settings

The following settings can be configured when the [Permit access from guest users] checkbox is selected. Configure the functions available when the network camera is accessed without authentication with a user name and password in the following tab window.

1. Click the [Setup] tab.
2. Click [General User] on the left of the screen.
3. Check that [Guest User] is selected and then click [Modify].



4. The [Modify Guest User] page is displayed. Configure the settings as specified below.



5. Click [Save] to save the settings made in the previous steps.

Checking and Registering User Names and Passwords



When a password has already been registered, the [Password] field is blanked out. Take sufficient care when managing passwords. If you forget the password, a password newly registered is usable for authentication.

In a case when the [Do not permit access from guest users] checkbox is selected in the [General Authentication] area, the user name and password registered for the administrator or a general user in the network camera setting tab window must be set in the V-SFT software.

For details on the authentication settings, refer to "Authentication settings" page 1-49.

* **Login with an administrator-level user name and password is required to proceed to the following tab window settings.**

Administrator

1. Click the [Setup] tab.
2. Click [Administrator] at the left of the screen.
3. Check the settings in the [Input User Name and Password] area.
4. If any changes are made to these fields, click [Save] to save the changes.

The screenshot shows the 'Administrator' settings page. The 'Setup' tab is selected. The 'Administrator' menu item is highlighted in the left sidebar. The main content area is titled 'Administrator' and contains the following sections:

- General Authentication:** Three radio buttons: 'Permit access from guest users', 'Permit access from guest users (mobile only)', and 'Do not permit access from guest users' (which is selected).
- Administrator Authentication:** Three input fields: 'User Name (6 to 15 Characters)' with the value 'hakko-elec', 'Password (6 to 15 Characters)', and 'Retype Password'. The password fields are currently blanked out.

There are 'Save' and 'Cancel' buttons at the bottom. A red box highlights the 'Administrator Authentication' section. A red box also highlights the 'Administrator' menu item in the sidebar.

General users

1. Click the [Setup] tab.
2. Click [General User] on the left of the screen.
3. Select the target user name from the [User ID List].
4. Click [Modify].

The screenshot shows the 'General User' settings page. The 'Setup' tab is selected. The 'General User' menu item is highlighted in the left sidebar. The main content area is titled 'General User' and contains the following sections:

- User ID List (Max. 50 Users):** A table with two rows: 'tanaka' and 'yamada'. A red box highlights this table.
- Buttons:** 'Create', 'Modify', and 'Delete' buttons are located to the right of the table. The 'Modify' button is circled in red.

There are 'Save' and 'Cancel' buttons at the bottom. A red box also highlights the 'General User' menu item in the sidebar.

5. Check the settings in the [Input User Name and Password] area.

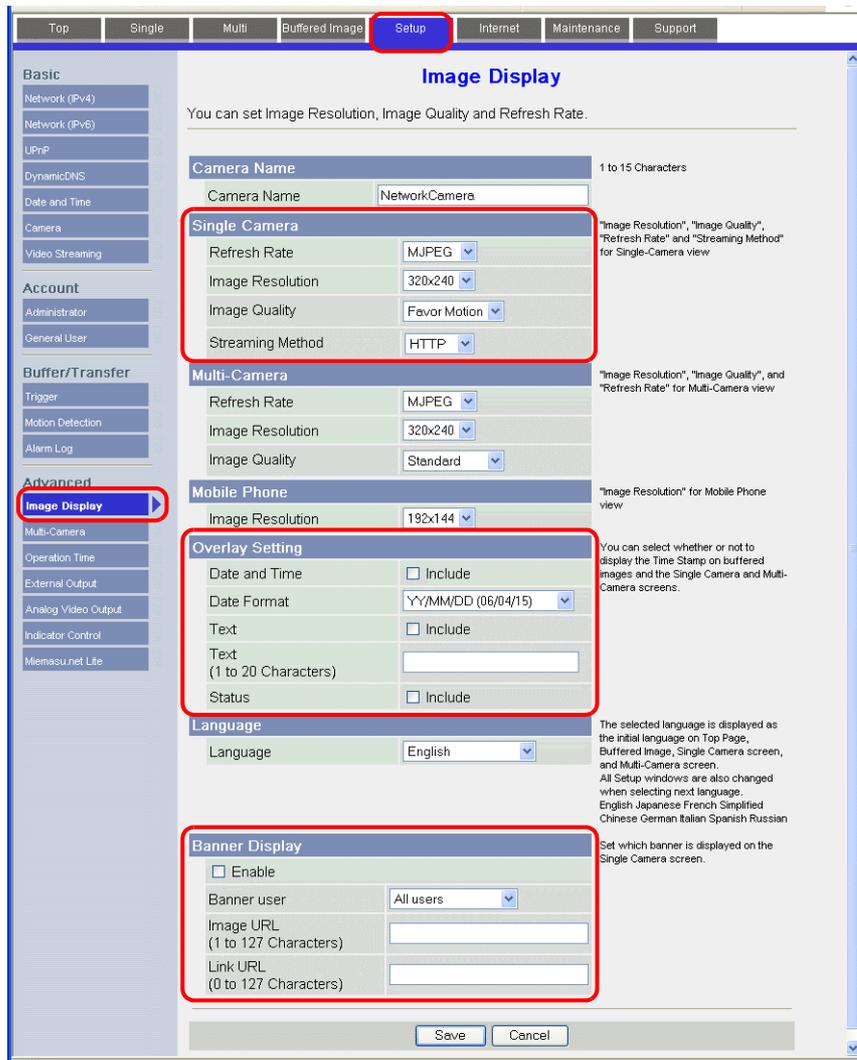


6. If any changes are made to these fields, click [Save] to save the changes.

Image Display Settings

* **Login with an administrator-level user name and password is required to proceed to the following tab window settings.**

1. Click the [Setup] tab.
 2. Click [Image Display] at the left of the screen.
 3. Configure the settings as specified below.
- * Note that these settings will be overwritten while the V9 series unit is communicating with the network camera. Because overwriting is likely to be time-consuming, it is recommended to configure these settings in advance.

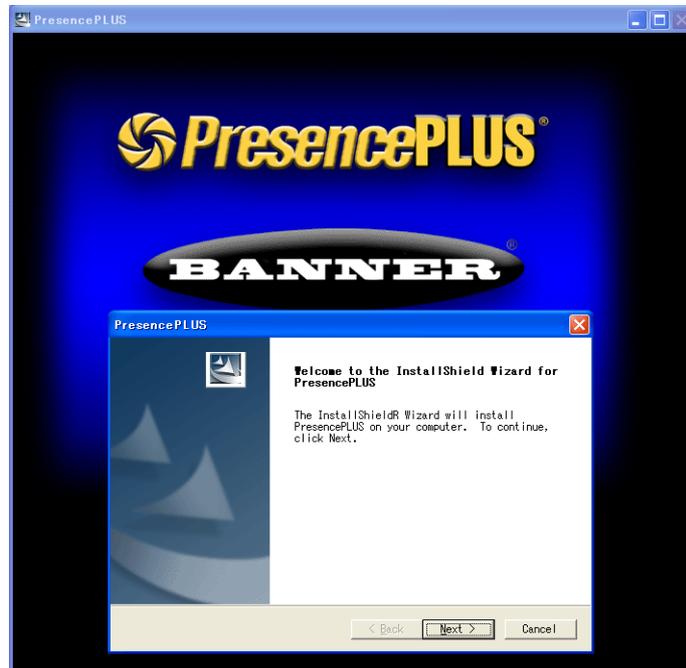


4. Click [Save] to save the settings made in the previous steps.

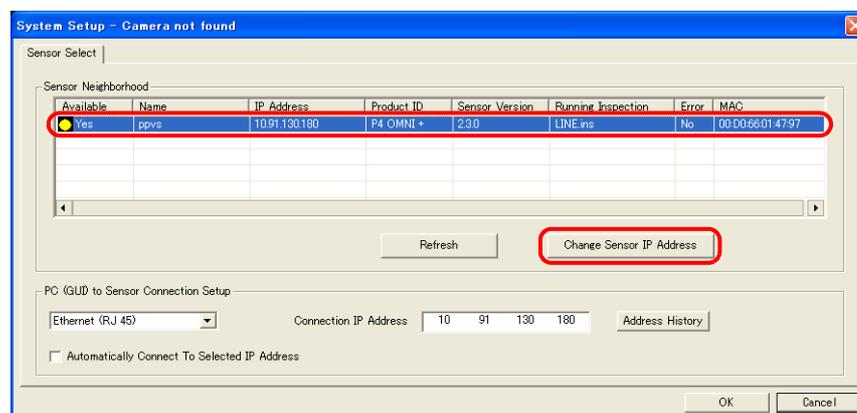
1.3.7 BANNER (Example: PresencePLUS P4 OMNI)

Access from the Computer

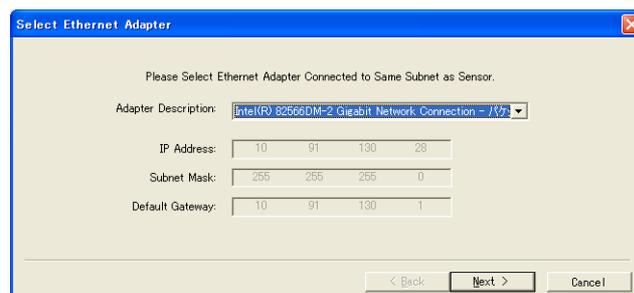
When accessing a sensor from a computer, use the "PresencePLUS" dedicated sensor software. The CD-ROM provided with the sensor includes this software. Load the CD-ROM into the computer and install the software. For details on the installation procedure, refer to the manual issued by BANNER.



1. Start the "PresencePLUS" software.
2. The [System Setup] window is displayed. When a connected sensor is found, the information on the sensor, including IP address and MAC address, appears in the window. Select the desired sensor listed under [Sensor Neighborhood] with the cursor and click [Change Sensor IP Address].



3. The [Select Ethernet Adapter] window is displayed. Select the Ethernet adapter of the computer and click [Next].



- The [Set Sensor IP Address] window is displayed. Change the sensor's IP address and subnet mask settings as necessary and click [Finish].



The sensor is reset in this step.

* Make sure that the computer network group and the sensor IP address are on the same network.

- Click [OK] in the [System Setup] window to close the window.
- When a connection between the computer and the sensor is established, the monitor screen is displayed on the computer.



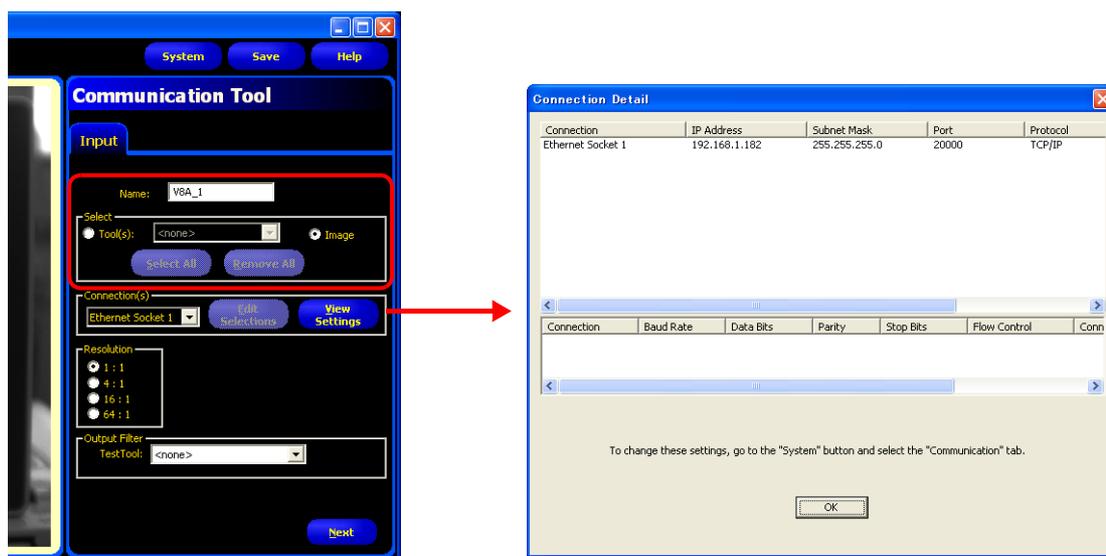
Sensor Settings

Port number setting

1. Click the [Tools] menu button.
2. Click the [Analysis] tab → [Communication].



3. The [Communication Tool] menu opens. Enter an arbitrary name for [Name] and select [Image] under [Select].



4. In the [Connection(s)] section, select an Ethernet socket number. The sensor port number corresponding to the selected socket number is used for connection with V9 series unit.
To see more information on each Ethernet socket number, display the [Connection Detail] window by clicking [View Settings].

Socket No.	Port No. (Fixed)
Ethernet socket 1	20000
Ethernet socket 2	20001
Ethernet socket 3	20002
Ethernet socket 4	20003
Ethernet socket 5	20004
Ethernet socket 6	20005
Ethernet socket 7	20006
Ethernet socket 8	20007
Ethernet socket 9	20008
Ethernet socket 10	20009

* The sensor port number corresponding to each Ethernet socket number is fixed.

- In the [Resolution] section, select the size of the image to be displayed on the V9 series unit.

Resolution	Description *
1:1	Display at actual size (640 × 480 pixels)
4:1	Display at a half of the size (320 × 240 pixels) of the width and height of 1:1 resolution
16:1	Display at a quarter of the size (160 × 120 pixels) of the width and height of 1:1 resolution
64:1	Display at an eighth of the size (80 × 60 pixels) of the width and height of 1:1 resolution

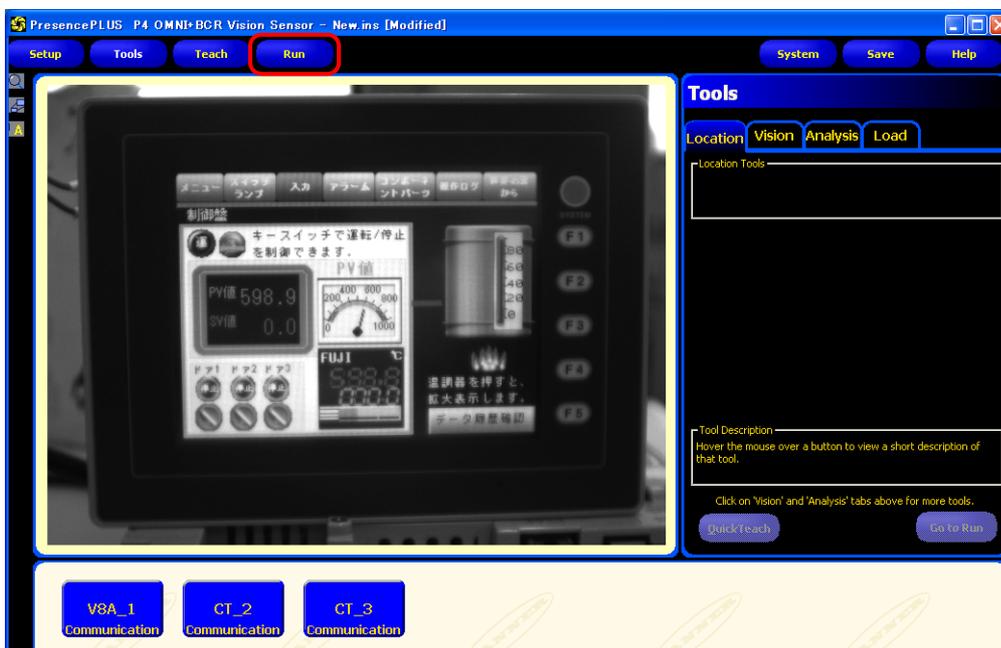
* The size of images captured with the sensor is based on 640 x 480 pixels (default). When changing the size, refer to the manual issued by BANNER.

- Click [Next] to exit the menu.

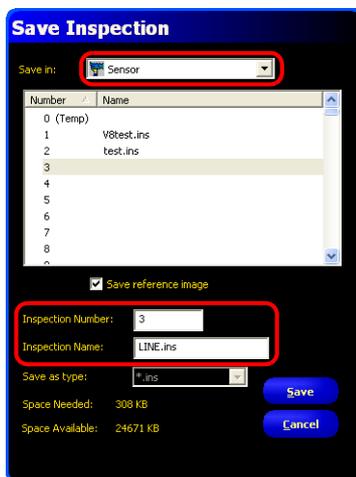
* Repeat steps 2 to 5 when connecting multiple V9 series units. (Maximum of 10 sensors.) Only one V9 series unit can be connected per sensor port number.

RUN

- Click the [Run] menu button.

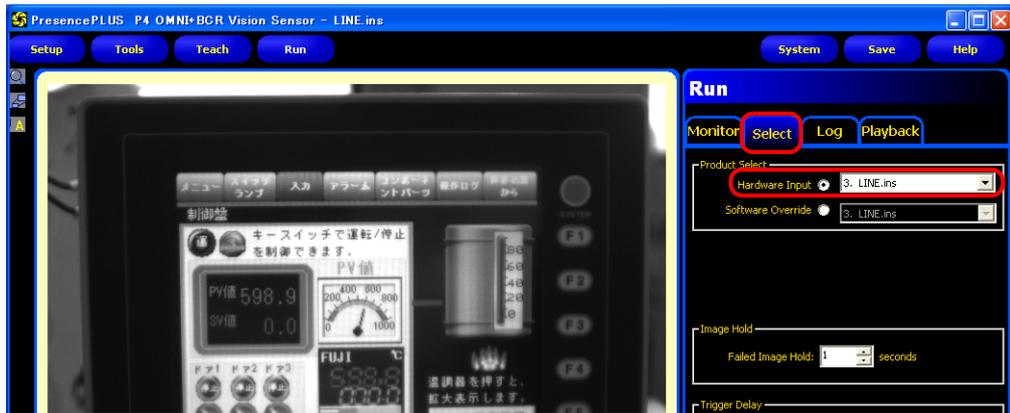


- The [Save Inspection] window is displayed. Select "Sensor" for [Save in]. Enter an [Inspection Number] and [Inspection Name] for registration and click [Save].



Example
 Inspection Number: 3
 Inspection Name: LINE.ins

- Click the [Select] tab in the [Run] menu, go to [Hardware Input], and select the name that was entered for [Inspection Name] in step 2.



- Click the [Monitor] tab → [Start].

The settings in the [Run] menu are complete.

1.3.8 Restrictions

All Manufacturers

- Up to four camera images can be displayed simultaneously using both the screen and overlaps. When a fifth camera image is displayed, the display of the oldest area in the placement order is stopped.
- The resolution of snapshot files saved on the V9 series unit depends on the [Item Resolution] set for the network camera or sensor.

AXIS

- The focus and brightness of images displayed by a network camera are automatically adjusted.
- The display size and rotation of images on the V9 series unit differs depending on the combination of network camera and the basic authentication settings in V-SFT.

Basic Authentication Settings		V9 Series Unit Display
Network Camera	V-SFT Network Camera Table Settings	
Not configured	Not configured	The previously configured size and rotation settings take effect for the display of images captured with the network camera.
	Configured	The configured size and rotation settings take effect for the display of images captured with the network camera.
Configured	Not configured	Camera display is hidden.
	Configured	The configured size and rotation settings take effect for the display of images captured with the network camera.

Panasonic

- The focus and brightness of images displayed by a network camera are automatically adjusted.
- The display size and rotation of images on the V9 series unit differs depending on the combination of network camera and the authentication settings in V-SFT.

Authentication Settings		V9 Series Unit Display
Network Camera	V-SFT Network Camera Table Settings	
Not configured	Not configured	The configured size and rotation settings take effect for the display of images captured with the network camera.
	Configured	The configured size and rotation settings take effect for the display of images captured with the network camera.
Configured	Not configured	Camera display is hidden.
	Configured	The configured size and rotation settings take effect for the display of images captured with the network camera.

BANNER

- Focus and brightness of sensor images are not automatically adjusted. Sensors do not support these automatic adjustments.

2 Sound

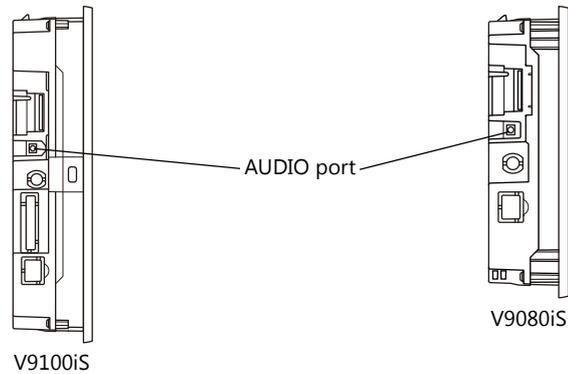
2.1 Overview

2.1.1 Before Use

Applicable Models

Only the V9 Standard model supports the audio playback function.

The V9 Standard model has a built-in stereo mini jack port (AUDIO) for audio playback.



Audio Specifications

Item	Specifications
Playable Files ^{*1}	WAV (PCM)
Sampling Frequency	8 KHz/16 KHz/32 KHz/44.1 KHz/48 KHz/96 KHz/192 KHz
Quantization Bit	8 bit/16 bit/24 bit
Audio Source	<ul style="list-style-type: none"> • Monaural • Stereo
Volume Control	8 levels (Macros can vary the volume from -21 dB to 0 dB in 3 dB steps.) Default: -6 dB
External Connection Terminal	φ3.5 mm stereo mini jack
Max. Output Voltage	2.1 Vrms (0 db)
Connected Amplifier	Input impedance of 1 KΩ or more

*1 For details on playable files, refer to "2.4.2 Audio Files"page 2-7.

Preparation

Prepare the following items to use the audio playback function.

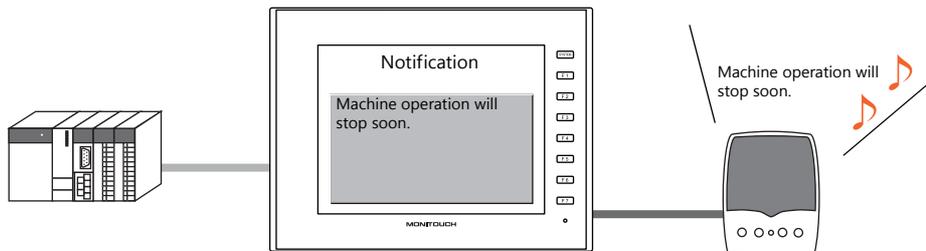
- V9 series unit
- Connected amplifier and external speaker
- Audio file (WAV)

2.1.2 Overview

Audio files can be played over the connected external speaker using the V9 series unit by turning bits ON and OFF.

The functions that can play audio are listed below.

- Local playback: Settings are required for each screen.
 - Audio item
 - Animation
- Global playback: Settings apply to the entire file.
 - Alarm Server



It is possible to play an audio file of the message displayed on the screen through the speaker by recording an audio file version of the message in advance.

2.2 Playing Audio Using Sound Parts

2.2.1 Setting Examples

Prepare the following audio files.

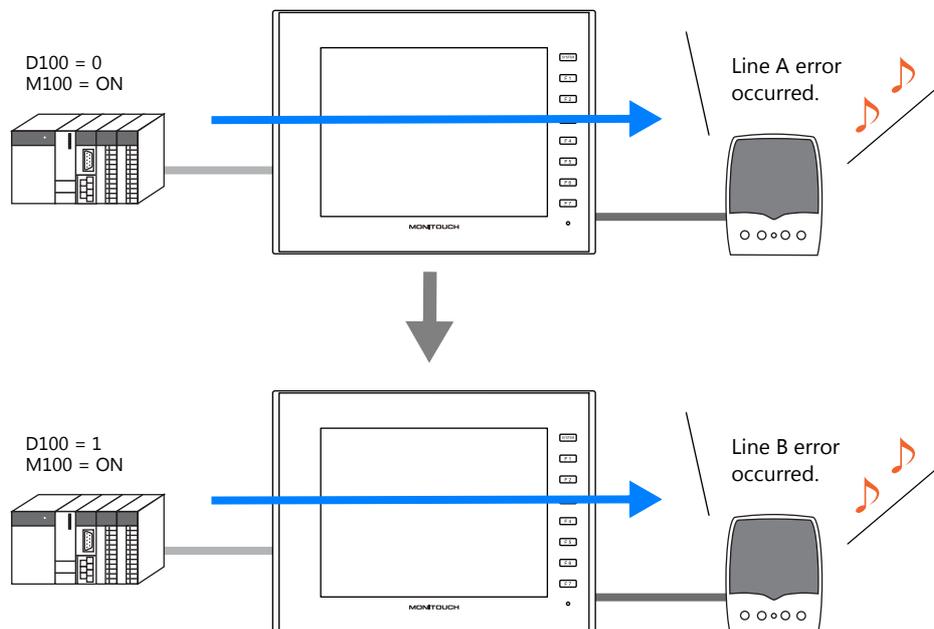
File	Description
WA0000.WAV	Line A
WA0001.WAV	Line B
WA0002.WAV	error
WA0003.WAV	occurred.
WA0004.WAV	recovered.

Configure the following settings using the above files.

Item	Description			
File Select	Play Order	0	Display Method	Device memory address: D100
		1	Display Method	File No. 2
		2	Display Method	File No. 3
Play	Monitoring Device	M100		

2.2.2 Conceptual Operation

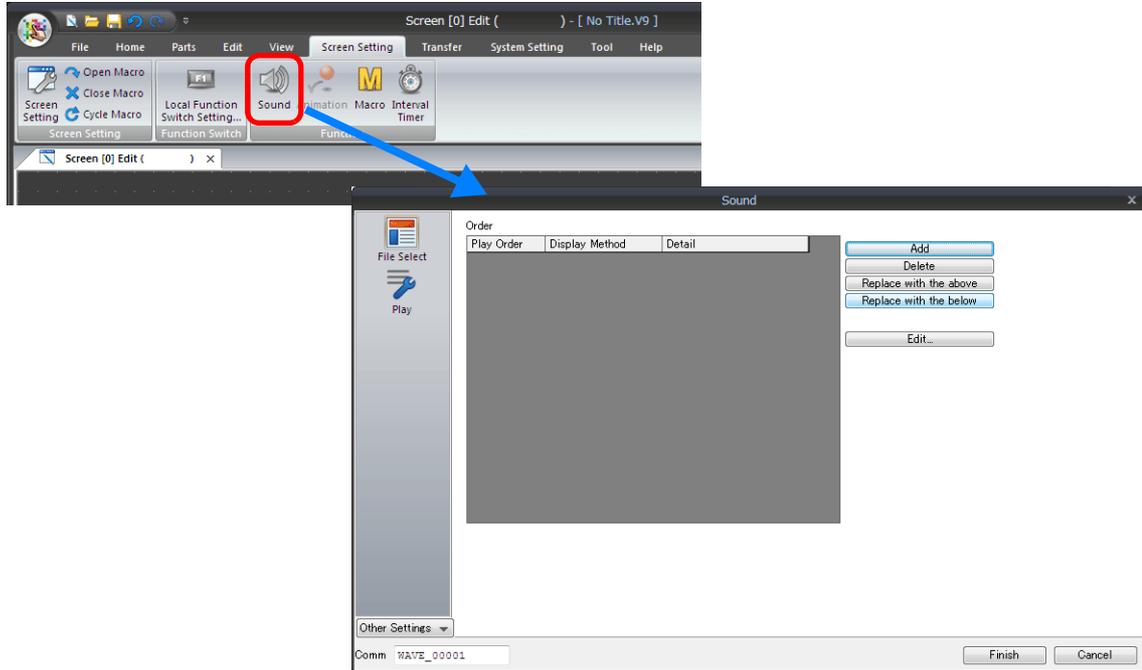
Operation is performed in the following manner when the unit is running with the above settings.



2.3 Detailed Settings

2.3.1 Sound Part

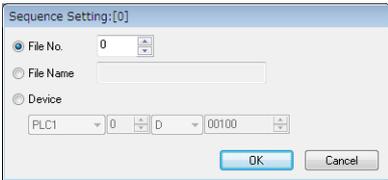
Click the [Screen Setting] menu → the [Sound] button.
The [Sound] settings window is displayed.



File Select

Click the [Add] button to add audio to the list under [Order].

Item	Description
Play Order ^{*1}	This is the order in which audio files are played.
Specification Method	Select the audio file specification method.
File No.	Specify the audio file to be played using a number. The format of audio filenames that can be specified for [File No.] is shown below. No files in any other name format can be played. WA xxxx .WAV (xxxx: 0000 to 1023: audio file number)
File Name	Specify the filename of the audio file to be played. The format of audio filenames that can be specified for [File Name] is shown below. No files in any other name format can be played. xxxxxxx .WAV (xxxxxxx: maximum of 64 one-byte numerals or uppercase alphabetic characters) * Filename specification is only available when the audio file is stored on an SD card.
Device	Select this option to switch between audio files for playback during RUN mode. Specify the device memory address where the audio file number is stored. The format of audio filenames that can be read using a device memory address is shown below. No files in any other name format can be played. WA xxxx .WAV (xxxx: 0000 to 1023: audio file number) * When "Device" is selected, always include the audio file in the screen program file. For details on including files, refer to " Locations for Storing Audio Files " page 2-8.
Detail	Information corresponding to the method selected for [Display Method] is displayed.
Play WAV File	This button is only available when "File No." is selected for [Display Method]. Press this button to play the selected file on the PC.
Add	Click to add an entry to the list.
Delete	Select an entry number to delete and click this button to delete the selected entry from the list.
Replace with the above/Replace with the below	Select an entry in the list and click the desired button to change the order of the entry in the list.

Item	Description
Edit	<p>Select an entry in the list and click this button to configure the [Specification Method] settings. The window shown below is displayed.</p> 

*1 For details on the order of audio file playback, refer to "2.4.1 Audio File Playback Priority" page 2-7.

Play

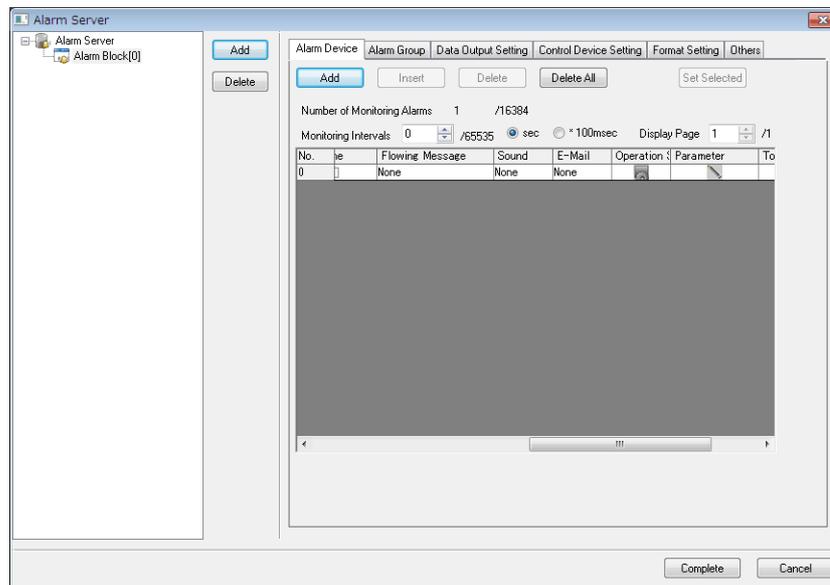
Item	Description
Monitoring Device	<p>Specify the bit memory address to use to play/stop the audio file set in the [File Select] settings (refer to the previous page).</p> <p>Play: [0] → [1] Stop: [1] → [0] (stops even while the file is playing.)</p>
Repeat playback	Select this checkbox to play the audio file repeatedly.
Priority (0 to 511)	When multiple audio items are placed on the screen, set the priority for playing for each item. When multiple bits are set to ON simultaneously, the audio file with the higher priority is played. However, if an audio file linked to an alarm server starts playing, the audio item will stop playing because the alarm server audio has a higher priority.

Detail

Item	Description
Process Cycle	Set a cycle for the V9 series to read the PLC data while it is communicating with the PLC.
ID	Set the ID. For details on IDs, refer to the V9 Series Operation Manual.

2.3.2 Alarm Server

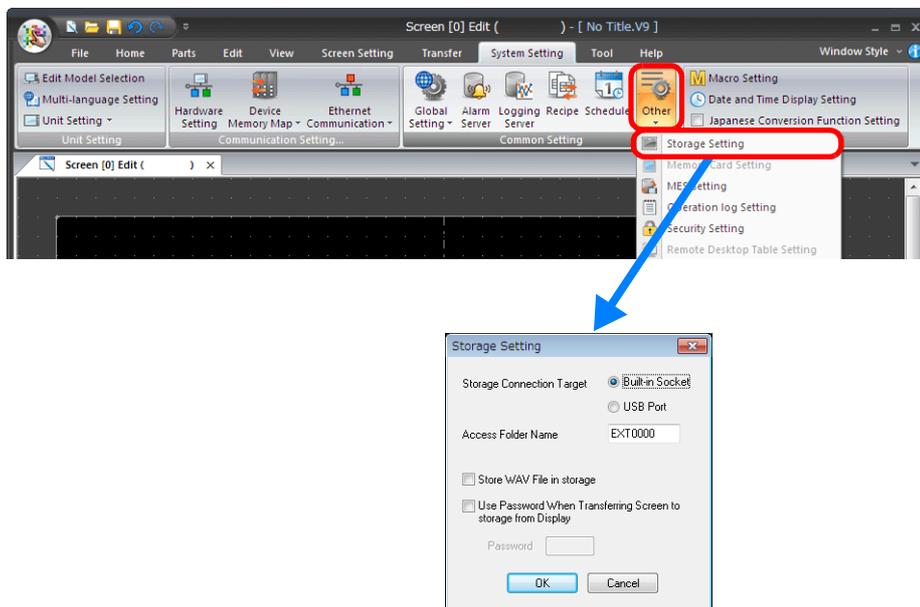
Click the [System Setting] → the [Alarm Server] button.
The [Alarm Server] settings window is displayed.



For details on linking audio files, refer to “8 Alarm” in the V9 Series Reference Manual 1.

2.3.3 Storage Settings

Click [System Setting] → [Other] → [Storage Setting].
The [Storage Setting] window is displayed.



Select the [Store WAV File in storage] checkbox to store the audio files on an SD card. For details, refer to “Locations for Storing Audio Files” page 2-8.

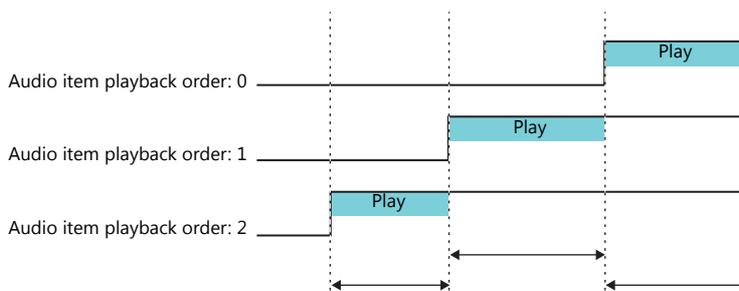
2.4 Notes

2.4.1 Audio File Playback Priority

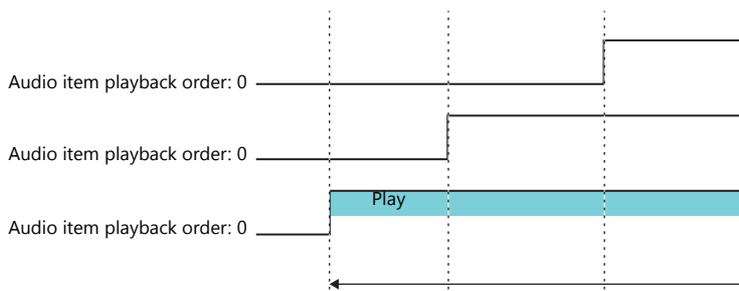
The following describes the playback priority for audio files.

Order of File Playback According to Audio Item

The order of playback can be set for each audio item. If the bits of all items turn ON at the same time, the item with the lowest order number is played.



If two items have the same order number, the file of the item whose bit turned ON first is played.



Order of File Playback According to Part Type

Audio playback for audio items and animation is regarded as local playback. If an alarm server causes global playback of an audio file during local playback, the audio of the alarm server takes priority and local playback stops.

2.4.2 Audio Files

File Format

Audio files in the following format can be played on the V9 series.

Sound Synthesis	PCM (WAV file)
Sampling Frequency	8 KHz/16 KHz/32 KHz/44.1 KHz/48 KHz/96 KHz/192 KHz
Quantization Bit	8-bit, 16-bit, 24-bit
Audio Source	Monaural, stereo

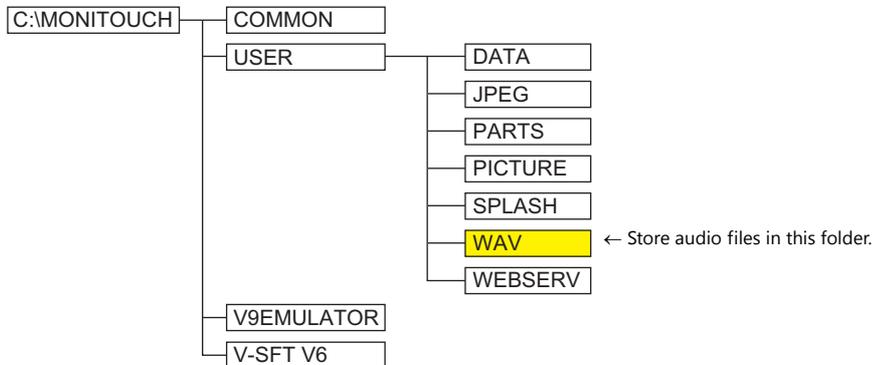


Locations for Storing Audio Files

During Editing

Save the audio files for use to the "WAV" folder in the "USER" folder, which is located in the "MONITOUCH" folder on the drive to which V-SFT Version 6 is installed.

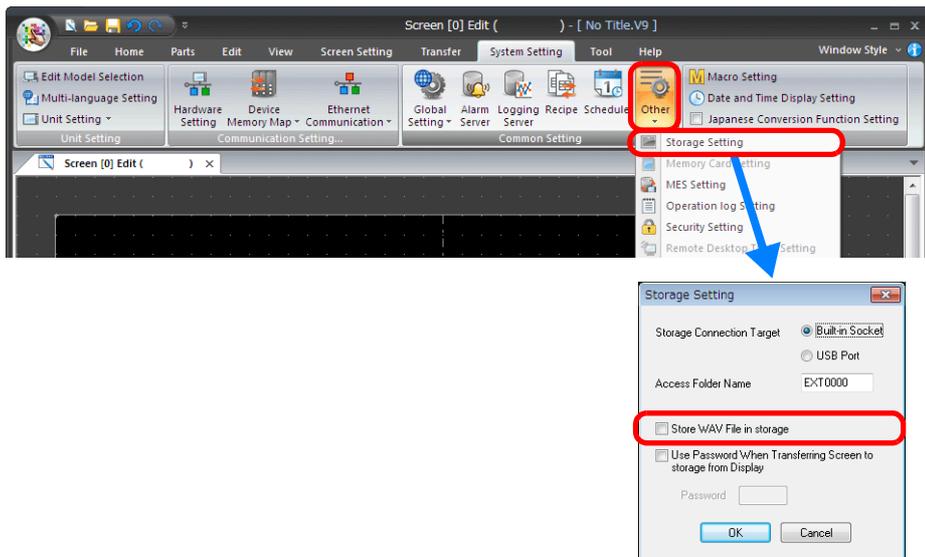
Audio files are transferred as part of the screen program when the screen program is transferred to the unit.



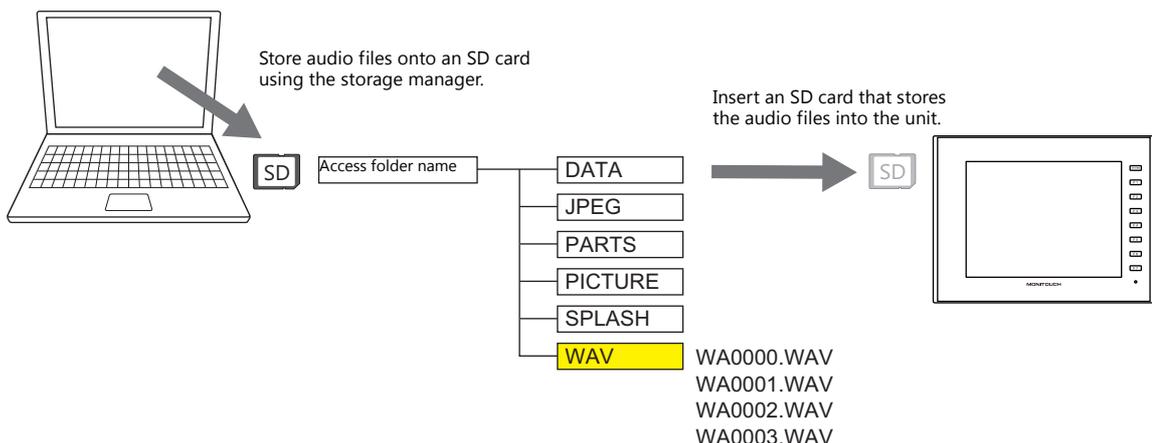
During Unit Operation

Audio files are transferred as part of the screen program when the screen program is transferred to the unit. However, audio files can be stored on an SD card to reduce the size of the screen program.

Select the [Store WAV File in storage] checkbox at [System Setting] → [Other] → [Storage Setting].



If settings are configured for audio files to be stored on an SD card, audio files are not automatically stored on the SD card even when screen program transfer is performed. The storage manager function must be used to store the audio files onto an SD card. For details, refer to "8 Storage Device".



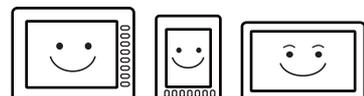
2.5 System Device Memory

Sound information is output to internal device memory (\$s).

- \$s1000
This device memory address stores the number of seconds until the currently playing WAV file will finished playing.
- \$s1001
This device memory address stores the adjusted volume value of channel L.
- \$s1002
This device memory address stores the adjusted volume value of channel R.

MEMO

MONITOUCH



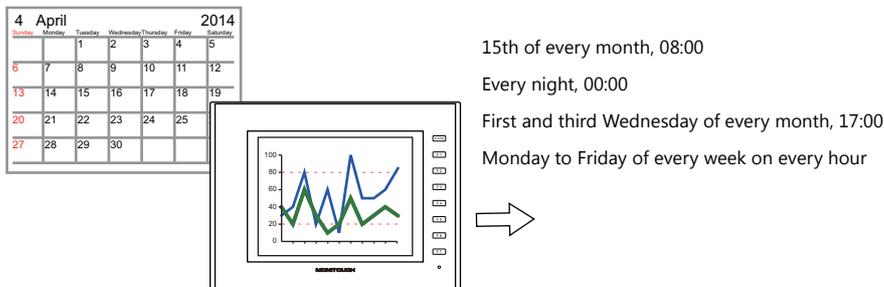
3 Scheduler

3.1 Overview

3.1.1 Scheduler

The scheduler function executes specific operations at the specified times. Operations include turning bits ON/OFF, writing data, and macro execution, and up to 64 schedules can be registered. Registered schedules can be checked in a list.

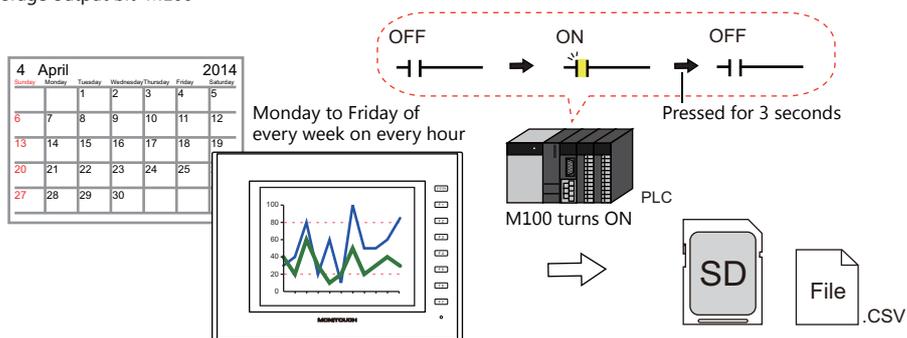
- Schedules can be executed according to a specified date and time or day of the week.



For setting examples, refer to "3.2.1 Trigger Settings" page 3-3.

- CSV output from a logging server can be easily executed using the scheduler function.

Example: Storage output bit M100



For setting examples, refer to "3.2.2 Operation Settings" page 3-8.

- Schedules can be executed at any time by setting an operation time to a device memory address.

For setting examples, refer to "Designation: Device" page 3-7.

- An interlock can be set to a schedule to control execution permission using bit status.

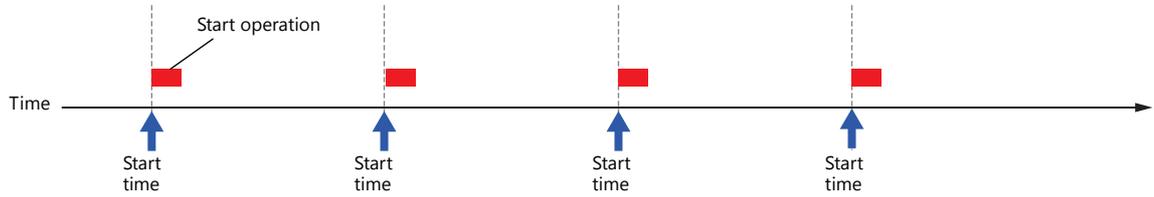
For details, refer to "Others" page 3-15.

3.1.2 Operation Specifications

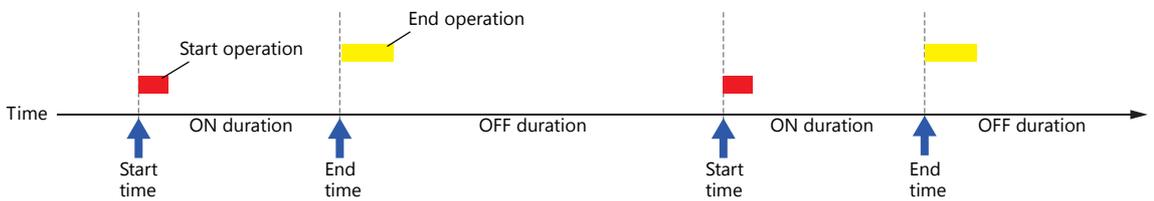
Execution Timing (Trigger)

There are two types of execution timings that can be specified: start time, and start time and end time.

- Start
Perform operation once at start time.



- Start and end
Perform an operation once at the start time and another operation at the end time.



Operation Item

- Bit output
- Word writing
- Macros

3.2 Setting Example

3.2.1 Trigger Settings

Specification Method: Direct

Set the operation time of the schedule to the screen program.

There are two general methods for setting the operation time: date specification and day of the week specification.

Date specification

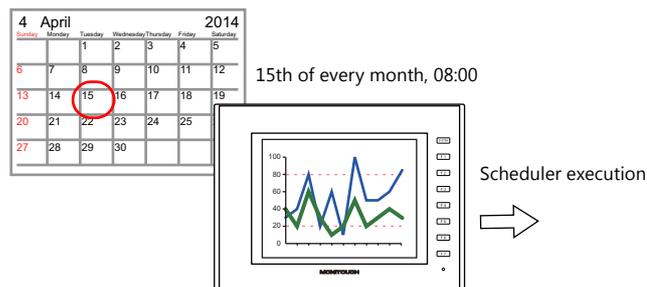
- "Execution Every Month with Date Specifications" page 3-3 (Example: Execution on the 15th of every month at 08:00)
- "Execution Every Day with Time Specifications" page 3-4 (Example: Execution every night at 00:00)

Day of the week specification

- "Execution Every Month with Day of the Week Specifications" page 3-5 (Example: Execution on the first and third Wednesday of every month at 17:00)
- "Execution Every Week with Day of the Week Specifications" page 3-6 (Example: Execution at every hour, Monday to Friday of every week)

Execution Every Month with Date Specifications

This section explains the setting procedure for execution on the 15th of every month at 08:00.



1. Click [System Setting] → [Scheduler].
2. Click [New].
3. Register the schedule name for [Settings] on the [General] tab window.
4. Configure the following settings on the [Trigger] tab window.

Trigger: Start
 Designation: Direct
 Action: 15th of every month
 Time: 08:00

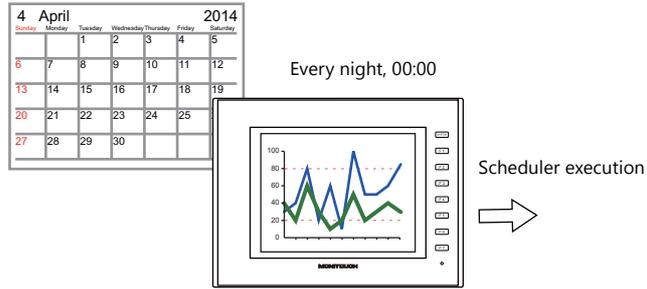
This completes the necessary settings.

Operation settings are described next.

For operation setting examples, refer to "3.2.2 Operation Settings" page 3-8.

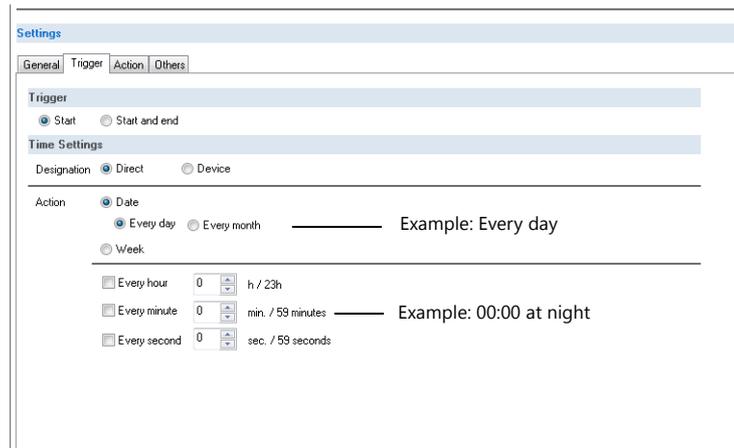
Execution Every Day with Time Specifications

This section explains the setting procedure for execution on every night at 00:00.



1. Click [System Settings] → [Scheduler].
2. Click [New].
3. Register the schedule name for [Settings] on the [General] tab window.
4. Configure the following settings on the [Trigger] tab window.

Trigger: Start
 Designation: Direct
 Action: Every day
 Time: 0 hour, 0 minutes, 0 seconds

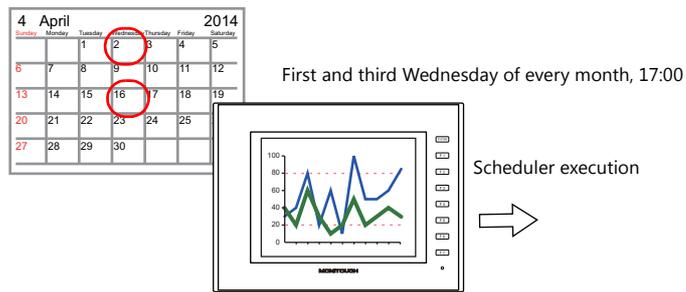


This completes the necessary settings.
 Operation settings are described next.

For operation setting examples, refer to “3.2.2 Operation Settings” page 3-8.

Execution Every Month with Day of the Week Specifications

This section explains the setting procedure for execution on the first and third Wednesday of every month at 17:00.



1. Click [System Settings] → [Scheduler].
2. Click [New].
3. Register the schedule name for [Settings] on the [General] tab window.
4. Configure the following settings on the [Trigger] tab window.

Trigger: Start
 Designation: Direct
 Action: First and third Wednesday of every month
 Time: 17:00

Settings

General Trigger Action Others

Trigger

Start Start and end

Time Settings

Designation Direct Device

Action

Date

Week

Every week 1st 2nd 3rd 4th Last

Sun Mon Tue Wed Thu Fri Sat

Every hour 17 h / 23h Example: 5:00 p.m.

Every minute 0 min. / 59 minutes

Every second 0 sec. / 59 seconds

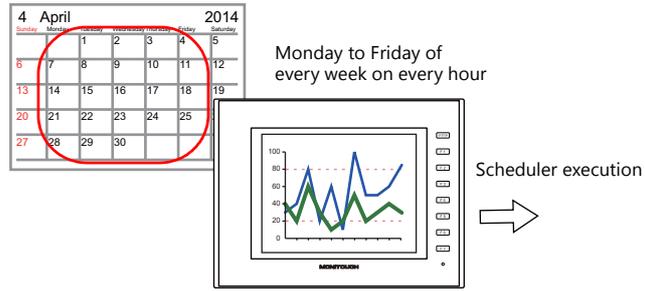
Example: First and third Wednesday of every month

This completes the necessary settings.
 Operation settings are described next.

For operation setting examples, refer to "3.2.2 Operation Settings" page 3-8.

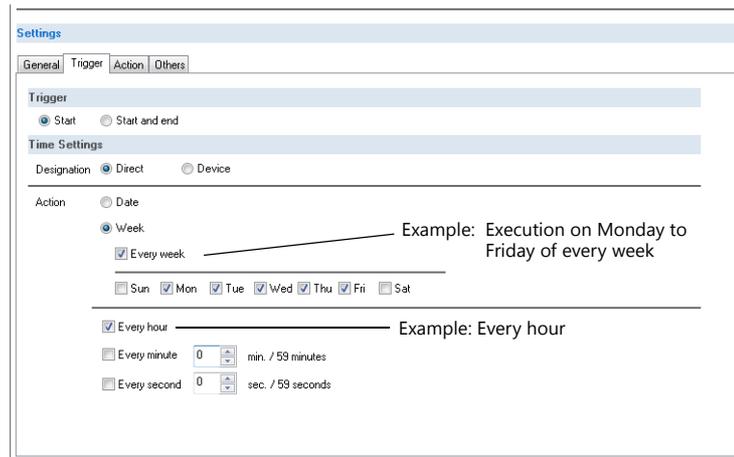
Execution Every Week with Day of the Week Specifications

This section explains the setting procedure for execution on Monday to Friday of every week on every hour.



1. Click [System Settings] → [Scheduler].
2. Click [New].
3. Register the schedule name for [Settings] on the [General] tab window.
4. Configure the following settings on the [Trigger] tab window.

Trigger: Start
 Designation: Direct
 Action: Monday to Friday of every week
 Time: [Every hour] checkbox selected



This completes the necessary settings.
 Operation settings are described next.

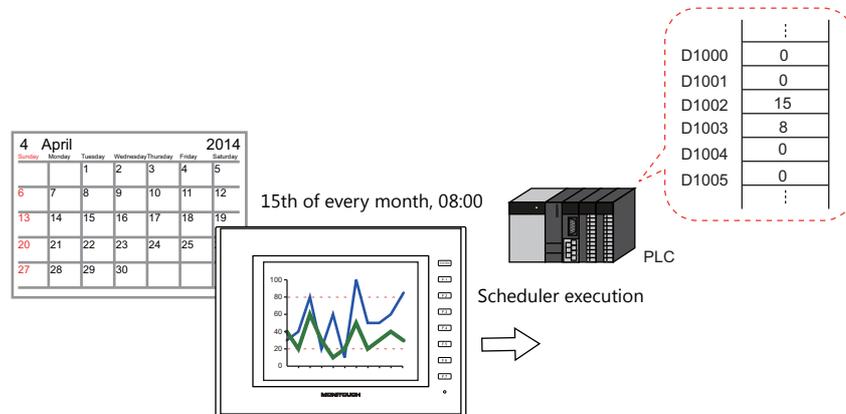
For operation setting examples, refer to “3.2.2 Operation Settings” page 3-8.

Designation: Device

Set the operation time of the schedule to the screen program using a device memory address. (The date and time are set to all devices memory address.)

The date and time is specified and the schedule is executed in RUN mode.

The setting procedure is described below.



1. Click [System Settings] → [Scheduler].
2. Click [New].
3. Register the schedule name for [Settings] on the [General] tab window.
4. Configure the following settings on the [Trigger] tab window.

Settings

General Trigger Action Others

Trigger

Start Start and end

Time Settings

Designation Direct Device

Time Setting Device: PLC1 0 D 01000 — Example: 6 words from D1000 to D1005

Input Type

Control Device: D01000

"n"th Week: D01001

Day/Week: D01002

Action Time

Hour: D01003

Minute: D01004

Second: D01005

The operation date and time is assigned consecutively from the [Time Setting Device]. The number of words used differs depending on the [Trigger] setting.

- [Start]: 6 consecutive words
- [Start and end]: 9 consecutive words

☞ For details, refer to "Designation: Device" page 3-12.

This completes the necessary settings.
Operation settings are described next.

☞ For operation setting examples, refer to "3.2.2 Operation Settings" page 3-8.

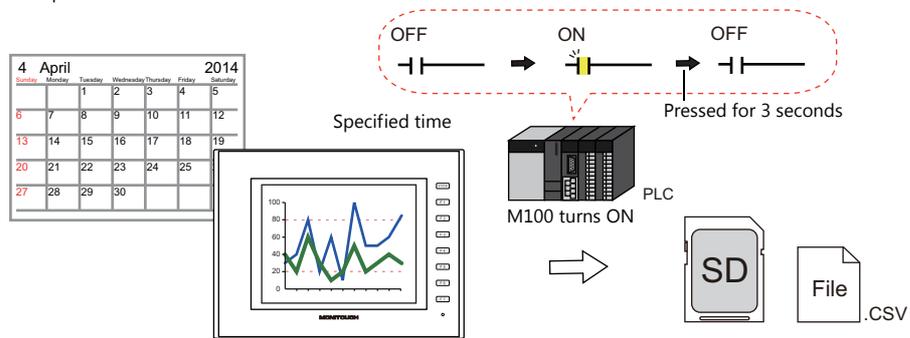
The schedule is started by setting the operation time to [Time Setting Device] on MONITOUCH.

☞ For details on the time specification method, see "3.4 Example of Date and Time Specification by Device Memory (Designation: Device)" page 3-16.

3.2.2 Operation Settings

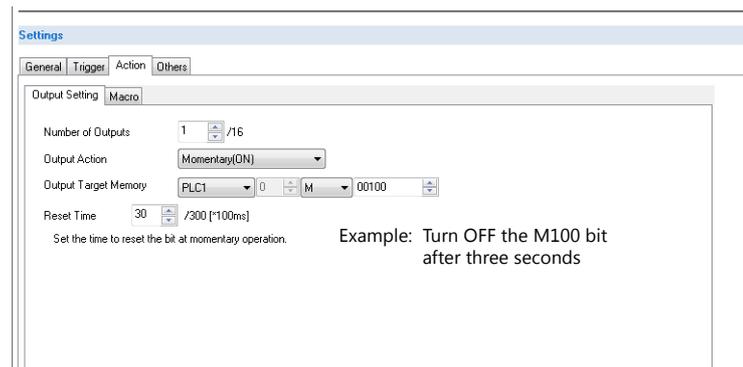
This section explains the setting procedure for turning ON the M100 bit at the specified time. The M100 bit is turned OFF after three seconds.

Example: CSV output bit M100



1. Set "1" for [Number of Outputs] under [Action] → [Output Setting] in the schedule.
2. Configure the operation settings as shown below.

Output Action: Momentary (ON)
 Output Target Memory: M100
 Reset Time: 30 * 100 ms (3 seconds)



This completes the necessary settings.

3.3 Detailed Settings

Location of settings: [System Setting] → [Scheduler].

Schedule List

The screenshot shows the Scheduler interface. At the top, it says "The specified action is executed at the specified time." Below this is the "Schedule List" section, which contains a table with the following data:

No.	Schedule Name	Trigger	Action(Start)	Action(End)	Other Settings
0	SCHEDULE_00	15Day 8:00:00	Output device Count : 1 Macro : None	None	Yes
1	SCHEDULE_01	Every day 0:00:00	Output device Count : 2 Macro : None	None	Yes
2	SCHEDULE_02	Every weekMonday Every weekTuesday Every weekWednesday Every weekThursday	Macro : Yes	None	Yes
3	SCHEDULE_03	Time Setting Device : D01000	Output device Count : 1 Macro : Yes	None	Yes

Below the table is a "Settings" section with tabs for "General", "Trigger", "Action", and "Others". The "General" tab is selected, and the "Schedule Name" field contains "SCHEDULE_00".

An annotation "List of currently registered schedules" points to the "Schedule List" table.

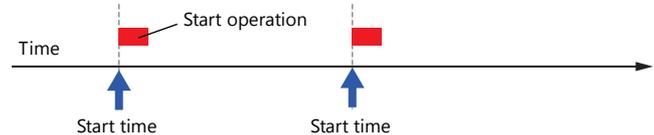
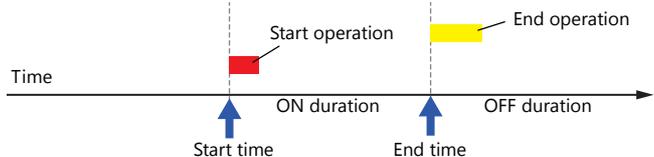
Item	Description
New	Create a new schedule. A maximum of 64 schedules can be registered.
Delete	Delete the selected schedule.
Preview	Currently registered schedules can be checked in a list. Schedules registered with component parts are shown with an asterisk (*) on the left of [No.].

General

The screenshot shows the "Settings" section of the Scheduler interface, specifically the "General" tab. The "Schedule Name" field contains "SCHEDULE_00".

Item	Description
Schedule Name	Register the schedule name. 256 characters maximum

Trigger

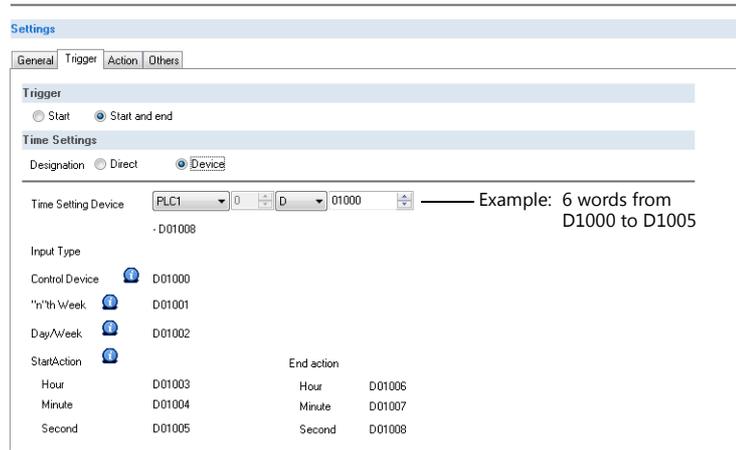
Item	Description
Trigger	<p>Start Perform operation once at the start time.</p>  <p>Start and end Perform the start operation at the start time and the end operation at the end time.</p> 
Designation	<p>Direct Set a specific date and time.</p> <p>Device Set the entire date and time using device memory.</p>

Designation: Direct

Item	Description																																																	
Action	<p>Date</p> <p>Every day Execute every day.</p> <p>Every month, x day Execute on the specified day.</p> <hr/> <p>Week</p> <p>Every week Execute every week.</p> <p>1st, 2nd, 3rd, 4th, Last Execute on the specified day of the week (Sunday to Saturday) on the specified week. The first week at the start of each month corresponds to [1st]. Multiple checkboxes can be selected.</p> <table border="1"> <thead> <tr> <th>Sun</th> <th>Mon</th> <th>Tue</th> <th>Wed</th> <th>Thu</th> <th>Fri</th> <th>Sat</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td>1</td> <td>2</td> </tr> <tr> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> <td>9</td> </tr> <tr> <td>10</td> <td>11</td> <td>12</td> <td>13</td> <td>14</td> <td>15</td> <td>16</td> </tr> <tr> <td>17</td> <td>18</td> <td>19</td> <td>20</td> <td>21</td> <td>22</td> <td>23</td> </tr> <tr> <td>24</td> <td>25</td> <td>26</td> <td>27</td> <td>28</td> <td>29</td> <td>30</td> </tr> <tr> <td>31</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>1st 1st to 7th 2nd 8th to 14th 3rd 15th to 21st 4th 22nd to 28th Last 25th to 31st</p> <p>Monday 25th corresponds to both 4th and Last</p> <p>Fridays in this month 1st 1st 2nd 8th 3rd 15th 4th 22nd Last 29th</p>	Sun	Mon	Tue	Wed	Thu	Fri	Sat						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31						
Sun	Mon	Tue	Wed	Thu	Fri	Sat																																												
					1	2																																												
3	4	5	6	7	8	9																																												
10	11	12	13	14	15	16																																												
17	18	19	20	21	22	23																																												
24	25	26	27	28	29	30																																												
31																																																		
Hour, minutes, and seconds	Specify the execution time of the schedule.																																																	



Designation: Device



Item	Description
Time Setting Device	Specify the device memory address to use to set the time. The time is assigned consecutively starting from this address. The number of words used differs depending on the [Trigger] setting. <ul style="list-style-type: none"> • [Start]: 6 consecutive words (n to n+5) • [Start and end]: 9 consecutive words (n to n+8)
Input Type	Select the code to use when reading data from the PLC device memory. BCD, DEC, FLOAT

Details of Time Setting Device

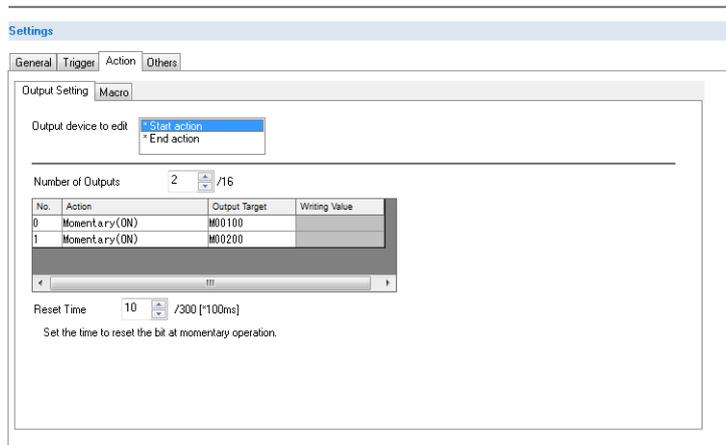
Device Memory	Description																																															
Control Device	<table border="1" style="width: 100%; text-align: center;"> <tr> <td colspan="11">MSB</td> <td colspan="4">LSB</td> </tr> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>09</td><td>08</td><td>07</td><td>06</td><td>05</td><td>04</td><td>03</td><td>02</td><td>01</td><td>00</td> </tr> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </table> <p style="text-align: center;">Not used (always set to "0")</p> <p style="text-align: right;"> 0 → 1: Confirm 1: Every second 0: Second can be specified 1: Every minute 0: Minute can be specified 1: Every hour 0: Hour can be specified </p>	MSB											LSB				15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	0	0	0	0	0	0	0	0	0	0						
	MSB											LSB																																				
	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																																
	0	0	0	0	0	0	0	0	0	0																																						
	Bit 0	Contents control device memory addresses n to n + 8 are determined by a 0 → 1 change in bit status and then the settings take effect. * When this bit is 1 at startup, the settings take effect.																																														
Action Bit 5	Specify a date or day of the week.																																															
Bit 4	<table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th>Date Setting</th> <th>05</th> <th>04</th> </tr> </thead> <tbody> <tr> <td>Every month, date, time</td> <td>0</td> <td>0</td> </tr> <tr> <td>Every day, time</td> <td>0</td> <td>1</td> </tr> <tr> <td>xth week, day of the week, time</td> <td>1</td> <td>0</td> </tr> <tr> <td>Every week, day of the week, time</td> <td>1</td> <td>1</td> </tr> </tbody> </table>	Date Setting	05	04	Every month, date, time	0	0	Every day, time	0	1	xth week, day of the week, time	1	0	Every week, day of the week, time	1	1																																
Date Setting	05	04																																														
Every month, date, time	0	0																																														
Every day, time	0	1																																														
xth week, day of the week, time	1	0																																														
Every week, day of the week, time	1	1																																														
Bits 1 to 3	When executing every hour, minute, or second, the corresponding bit is set to 1. When a bit is 0, the time is specified with n+3 to n+8.																																															



Device Memory		Description																																																																																							
"n"th Week	n+1	<p>Specify when control device memory n is set to the following.</p> <table border="1"> <thead> <tr> <th>Date Setting</th> <th>05</th> <th>04</th> </tr> </thead> <tbody> <tr> <td>xth week, day of the week, time</td> <td>1</td> <td>0</td> </tr> </tbody> </table> <p>When setting the ordinal week number of a day of the week, the corresponding bit is set to 1. Multiple selections can be made.</p> <table border="1"> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>09</td><td>08</td><td>07</td><td>06</td><td>05</td><td>04</td><td>03</td><td>02</td><td>01</td><td>00</td> </tr> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td></td><td></td><td></td><td></td><td></td> </tr> </table> <p style="text-align: right;"> 1: Last 1: 4th 1: 2nd 1: 3rd </p> <table border="1"> <thead> <tr> <th>Sun</th><th>Mon</th><th>Tue</th><th>Wed</th><th>Thu</th><th>Fri</th><th>Sat</th> </tr> </thead> <tbody> <tr> <td></td><td></td><td></td><td></td><td></td><td>1</td><td>2</td> </tr> <tr> <td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td> </tr> <tr> <td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td> </tr> <tr> <td>17</td><td>18</td><td>19</td><td>20</td><td>21</td><td>22</td><td>23</td> </tr> <tr> <td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td> </tr> <tr> <td>31</td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table> <p> 1st 1st to 7th 2nd 8th to 14th 3rd 15th to 21st 4th 22nd to 28th Last 25th to 31st </p> <p>Monday 25th corresponds to both 4th and Last</p> <p>Fridays in this month 1st 1st 2nd 8th 3rd 15th 4th 22nd Last 29th</p>	Date Setting	05	04	xth week, day of the week, time	1	0	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	0	0	0	0	0	0	0	0	0	0	0						Sun	Mon	Tue	Wed	Thu	Fri	Sat						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31						
Date Setting	05	04																																																																																							
xth week, day of the week, time	1	0																																																																																							
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																																																																										
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3	4	5	6	7	8	9																																																																																			
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17	18	19	20	21	22	23																																																																																			
24	25	26	27	28	29	30																																																																																			
31																																																																																									
Day/Week	n+2	<p>The setting differs depending on the status of bits 4 and 5 of the control device memory.</p> <ul style="list-style-type: none"> Date specification Set control device memory n to the following value. <table border="1"> <thead> <tr> <th>Date Setting</th> <th>05</th> <th>04</th> </tr> </thead> <tbody> <tr> <td>Every month, date, time</td> <td>0</td> <td>0</td> </tr> </tbody> </table> <p>- 1 to 31: Date - 99: Last day of each month</p> <ul style="list-style-type: none"> Day of the week specification Multiple days of the week can also be set. Set control device memory n to the following value. <table border="1"> <thead> <tr> <th>Date Setting</th> <th>05</th> <th>04</th> </tr> </thead> <tbody> <tr> <td>xth week, day of the week, time</td> <td>1</td> <td>0</td> </tr> <tr> <td>Every week, day of the week, time</td> <td>1</td> <td>1</td> </tr> </tbody> </table> <table border="1"> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>09</td><td>08</td><td>07</td><td>06</td><td>05</td><td>04</td><td>03</td><td>02</td><td>01</td><td>00</td> </tr> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </table> <p style="text-align: right;"> 1: Saturday 1: Friday 1: Thursday 1: Sunday 1: Monday 1: Tuesday 1: Wednesday </p>	Date Setting	05	04	Every month, date, time	0	0	Date Setting	05	04	xth week, day of the week, time	1	0	Every week, day of the week, time	1	1	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	0	0	0	0	0	0	0	0	0																																															
Date Setting	05	04																																																																																							
Every month, date, time	0	0																																																																																							
Date Setting	05	04																																																																																							
xth week, day of the week, time	1	0																																																																																							
Every week, day of the week, time	1	1																																																																																							
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																																																																										
0	0	0	0	0	0	0	0	0																																																																																	
Start Action: Hour	n+3	Used when bit 3 of the control device memory is 0 (hour specifiable). 0 to 23																																																																																							
Start Action: Minute	n+4	Used when bit 2 of the control device memory is 0 (minute specifiable). 0 to 59																																																																																							
Start Action: Second	n+5	Used when bit 1 of the control device memory is 0 (second specifiable). 0 to 59																																																																																							
End Action: Hour	n+6	Used when bit 3 of the control device memory is 0 (hour specifiable). 0 to 23																																																																																							
End Action: Minute	n+7	Used when bit 2 of the control device memory is 0 (minute specifiable). 0 to 59																																																																																							
End Action: Second	n+8	Used when bit 1 of the control device memory is 0 (second specifiable). 0 to 59																																																																																							

Action

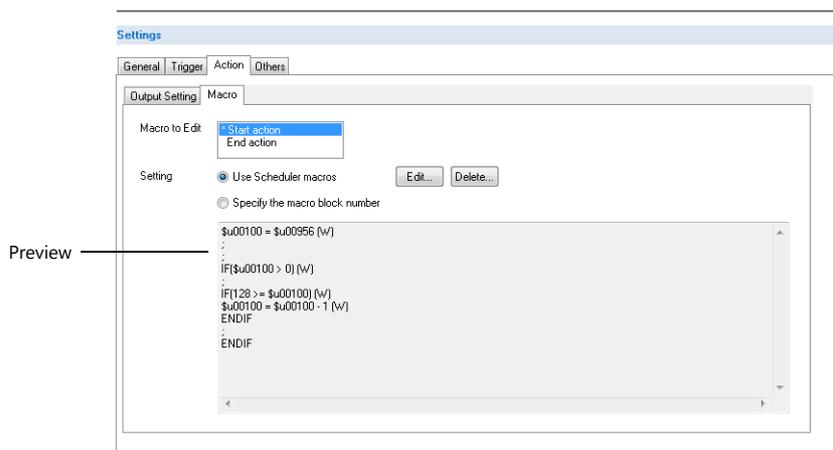
Output Setting



Item	Description
Output device to edit	This setting is available when [Start and end] is selected for [Trigger]. Select the operation for the start time and end time.
Number of Outputs	Set the number of bits to output. 1 to 16
Output Target	Specify the output device memory address.
Action	<p>Momentary (ON)* Turn the bit ON, and then turn it OFF after the time set for [Reset Time] elapses. [Reset time]: 1 to 300, units: 100 ms</p> <p>Momentary (OFF)* Turn the bit OFF, and then turn it ON after the time set for [Reset Time] elapses. [Reset time]: 1 to 300, units: 100 ms</p> <p>Set Turn the bit ON.</p> <p>Reset Turn the bit OFF.</p> <p>Alternate Alternate the bit between ON and OFF.</p> <p>Writing in Words Write the data value to the device memory. Set the data length of the value for writing using [Data Length]. 1-Word/2-Words (real numbers use 2 words)</p>

* When [Momentary] is set multiple times, [Reset Time] is used for all instances.

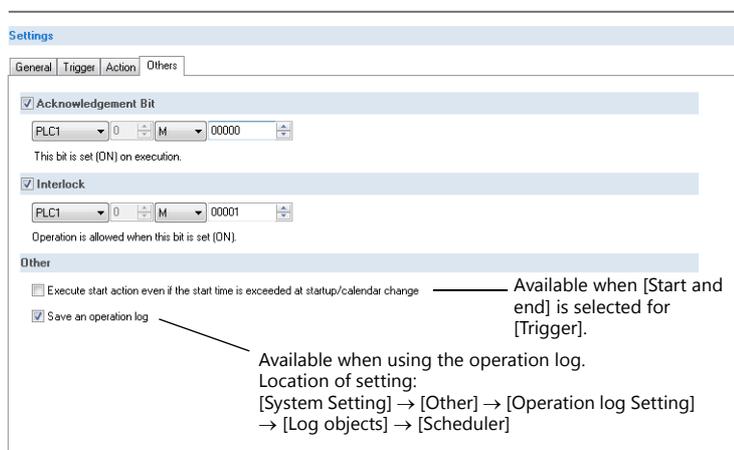
Macro



Item	Description
Macro to Edit	This setting is available when [Start and end] is selected for [Trigger]. Select the operation for the start time and end time. If settings exist, an asterisk (*) is shown.
Use Scheduler macros	Register a macro for execution using [Edit]. All macros can be deleted at once using [Delete].
Specify the macro block number	Select the macro block number using the pull-down menu. The selected macro block number can be edited using [Edit].
Preview	Displays the details of the currently selected macro.

For details on macros, refer to the V9 Series Macro Reference Manual.

Others



Item	Description
Acknowledgment Bit	This bit changes to 1 when the schedule is executed.
Interlock	Control the execution permission of the start operation. 1: Permitted 0: Prohibited * Even if the interlock bit changes to 0 (prohibited) during schedule operation, the end operation is performed.
Execute start operation even if the start time is exceeded at startup/calendar change	This setting is available when [Start and end] is selected for [Trigger]. Set the operation to perform when the time after startup or a calendar change is within the start/end time interval (ON interval). Selected The start operation is performed. No operation is performed if the end time is reached but the next start time is (OFF time). Unselected The start and end operations are not performed. Operations are performed from the next start time.
Save an operation log	This setting is available when the [Scheduler] checkbox is selected at [System Setting] → [Other] → [Operation log Setting] → [Log objects]. Save a log of schedule execution.

3.4 Example of Date and Time Specification by Device Memory (Designation: Device)

If the schedule operation time is set to a device memory address, the schedule will start at the time specified in the device memory.

This section explains the command method with an example where the time setting device memory is D1000.

There are two general methods for setting the operation time: date specification and day of the week specification.

Date specification

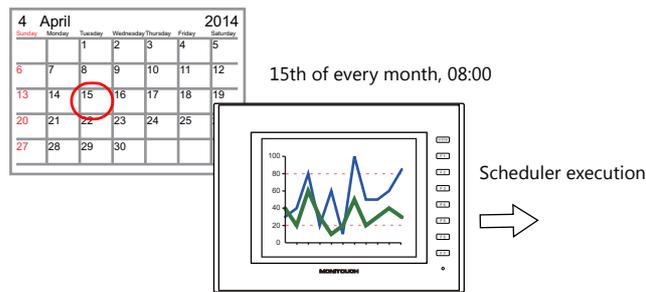
- "Execution Every Month with Date Specifications" page 3-16 (Example: Execution on the 15th of every month at 08:00)
- "Execution Every Day with Time Specifications" page 3-17 (Example: Execution every night at 00:00)

Day of the week specification

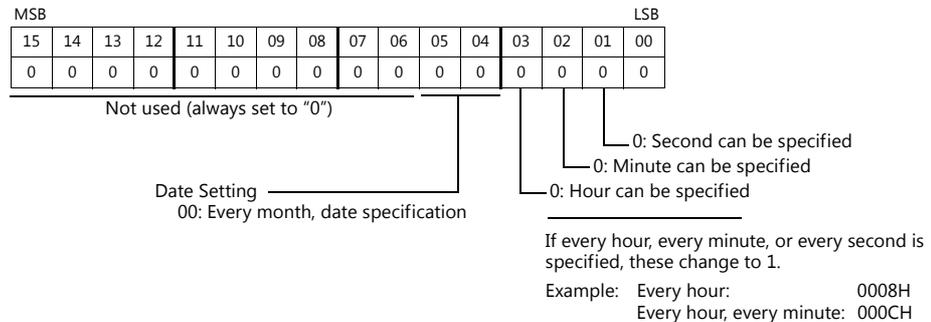
- "Execution Every Month with Day of the Week Specifications" page 3-18 (Example: Execution on the first and third Wednesday of every month at 17:00)
- "Execution Every Week with Day of the Week Specifications" page 3-19 (Example: Execution at every hour, Monday to Friday of every week)

Execution Every Month with Date Specifications

This section explains the setting procedure for execution on the 15th of every month at 08:00.



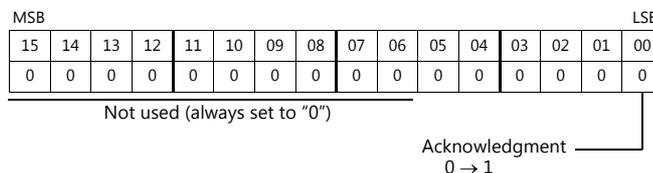
1. Set address D1000 to 0H.



2. Specify "15" for the date in address D1002.
3. Specify the start time in addresses D1003 to D1005.

Item	Device Memory	Setting Value	Remarks
Start Action: Hour	D1003	8	When D1000 bit 3 = 1 (every hour), disabled
Start Action: Minute	D1004	0	When D1000 bit 2 = 1 (every minute), disabled
Start Action: Second	D1005	0	When D1000 bit 1 = 1 (every second), disabled

4. Change bit 0 of address D1000 from 0 to 1.

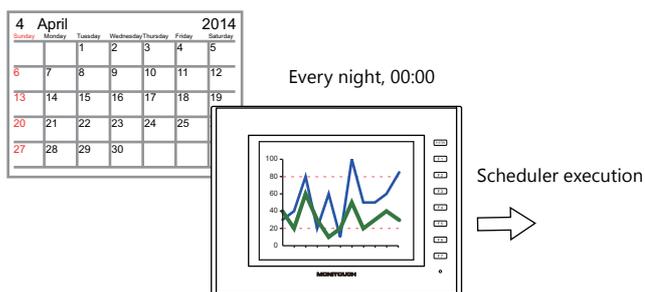


This completes the necessary settings.

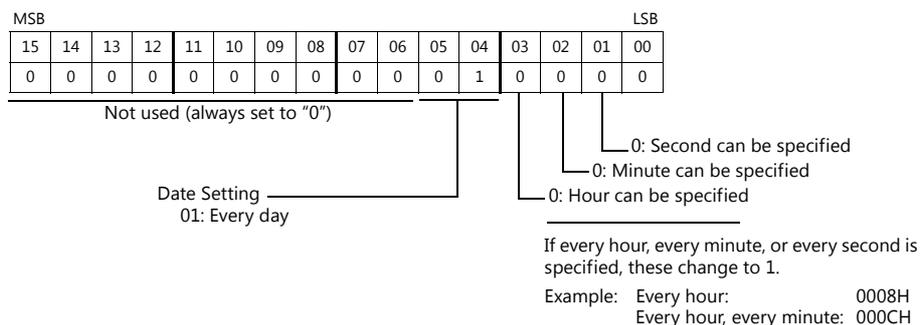
The scheduled operation is performed at the specified time. Perform steps 1 to 4 to change the settings.

Execution Every Day with Time Specifications

This section explains the setting procedure for execution on every night at 00:00.



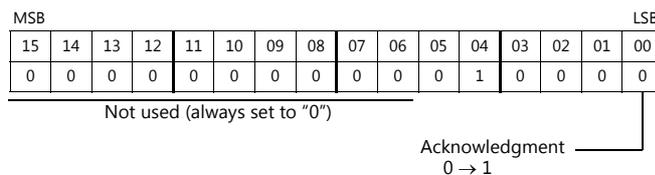
1. Set address D1000 to 10H.



2. Specify the start time in addresses D1003 to D1005.
(When [Start and end] is selected on the [Trigger] tab window, specify the end time in addresses D1006 to D1008.)

Item	Device Memory	Setting Value	Remarks
Start Action: Hour	D1003	0	When D1000 bit 3 = 1 (every hour), disabled
Start Action: Minute	D1004	0	When D1000 bit 2 = 1 (every minute), disabled
Start Action: Second	D1005	0	When D1000 bit 1 = 1 (every second), disabled

3. Change bit 0 of address D1000 from 0 to 1.

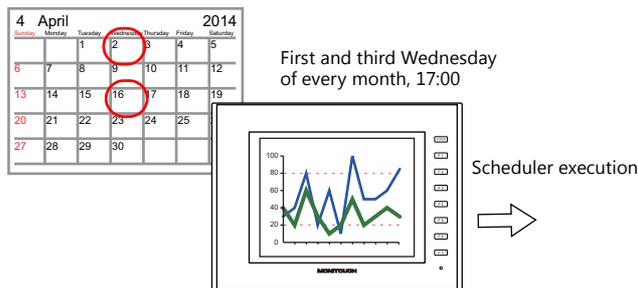


This completes the necessary settings.

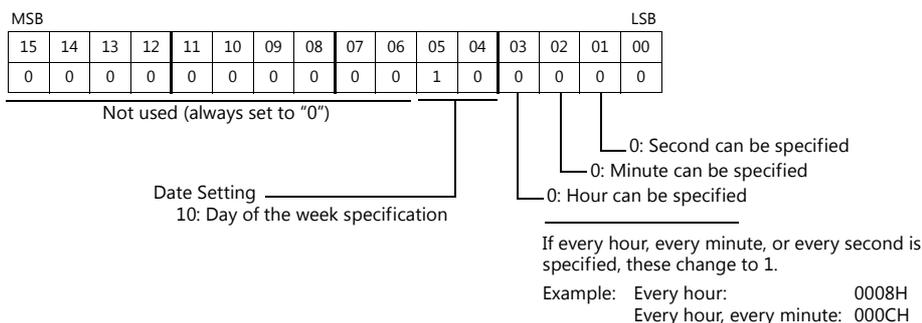
The scheduled operation is performed at the specified time. Perform steps 1 to 3 to change the settings.

Execution Every Month with Day of the Week Specifications

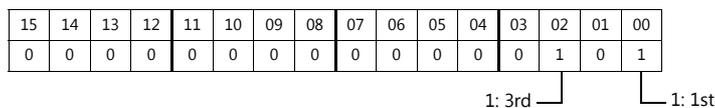
This section explains the setting procedure for execution on the first and third Wednesday of every month at 17:00.



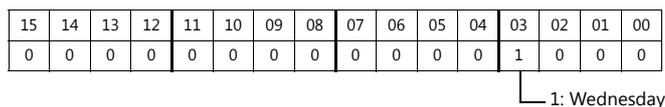
1. Set address D1000 to 20H.



2. Specify 5H for address D1001 so that execution occurs on the first and third weeks.



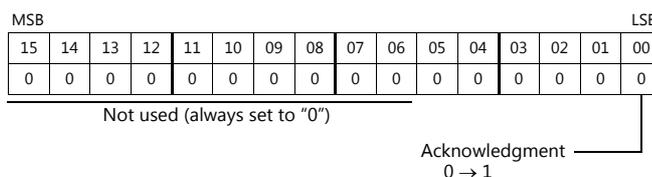
3. Specify 8H for Wednesday in address D1002.



4. Specify the start time in addresses D1003 to D1005.
(When [Start and end] is selected on the [Trigger] tab window, specify the end time in addresses D1006 to D1008.)

Item	Device Memory	Setting Value	Remarks
Start Action: Hour	D1003	17	When D1000 bit 3 = 1 (every hour), disabled
Start Action: Minute	D1004	0	When D1000 bit 2 = 1 (every minute), disabled
Start Action: Second	D1005	0	When D1000 bit 1 = 1 (every second), disabled

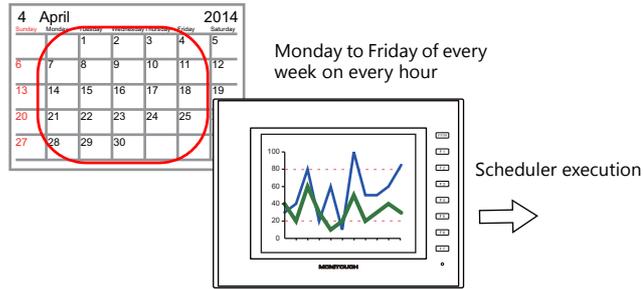
5. Change bit 0 of address D1000 from 0 to 1.



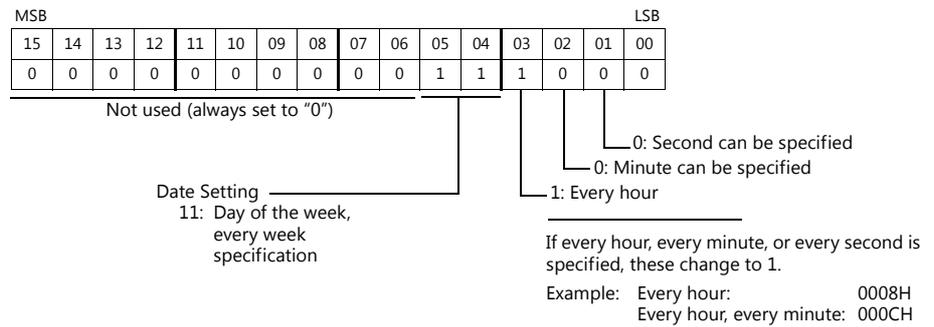
This completes the necessary settings.
The scheduled operation is performed at the specified time. Perform steps 1 to 5 to change the settings.

Execution Every Week with Day of the Week Specifications

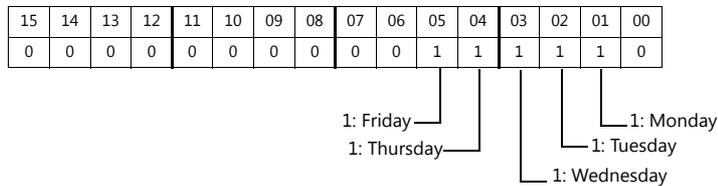
This section explains the setting procedure for execution on Monday to Friday of every week on every hour.



1. Set address D1000 to 38H.



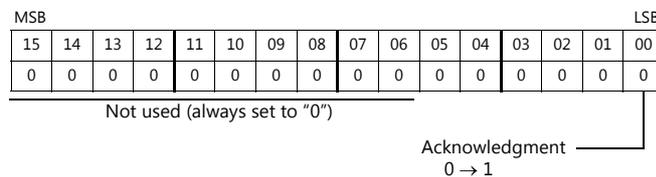
2. Specify 3EH for Monday to Friday in address D1002.



3. Specify the start time in addresses D1003 to D1005.

Item	Device Memory	Setting Value	Remarks
Start Action: Hour	D1003	-	When D1000 bit 3 = 1 (every hour), disabled
Start Action: Minute	D1004	0	When D1000 bit 2 = 1 (every minute), disabled
Start Action: Second	D1005	0	When D1000 bit 1 = 1 (every second), disabled

4. Change bit 0 of address D1000 from 0 to 1.



This completes the necessary settings.

The scheduled operation is performed at the specified time. Perform steps 1 to 4 to change the settings.

3.5 System Device Memory (\$s)

The following describes the system device memory associated with the scheduler function.

Device Memory	Description
\$s1650	After specifying device memory addresses n to n + 8 for operation time, the result is output when bit 0 (acknowledgment bit) of control device memory n changes from 0 to 1. When an invalid value is specified, the bit is 1. 1: Error 0: Normal Example: Invalid values include 40th day, 100 seconds etc. * When a valid time is set, the bit is 0.
\$s1651	
\$s1652	
\$s1653	

1: Error
0: Normal

\$s1650	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	← Bit number
	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	← Schedule number
\$s1651	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	← Bit number
	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	← Schedule number
\$s1652	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	← Bit number
	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	32	← Schedule number
\$s1653	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	← Bit number
	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48	← Schedule number

3.6 Notes

Date and Time Settings

- The start time and end time cannot be set to the same value.
- When specifying a date, operation is not performed if the date does not exist in the particular month.
 - Example:
When the 31st is specified, operation is not performed for February, April, June, September, or November. In this case, operation at the end of the month can be performed by selecting "Last day".
- Specify the end time within 24 hours of the start time. If the end time is before the start time, the end time will be set on the next day.
 - Example:
When set as for "every day, start time: 23:00, end time: 01:00", operation starts from 23:00 on the first day and ends at 01:00 on the second day, and starts from 23:00 on the second day and ends at 01:00 on the third day, etc.

Changing the Built-in Calendar

- If the time is corrected backward due to a date change (automatic correction), the scheduler is only executed once. If the time is corrected forward, the number of schedules that were skipped are executed.
- If the time is corrected using the following method, schedule operations are performed based on the corrected time.
 - Execute the calendar reading bit (location of setting: [System Setting] → [Hardware Setting] → [Control Area])
 - SYS (SET_CLND) macro command
 - SYS (SET_SYS_CLND) macro command

If the time is corrected backward, operation differs depending on the setting of [Execute start action even if the start time is exceeded at startup/calendar change].

 For details, refer to "Others" page 3-15.

Using a Time Setting Device Memory (Designation: Device)

- Operation continues unaffected if the time setting device is changed (acknowledgment bit: 0 → 1) during scheduled operation. Subsequent operations are performed at the changed time after the current operation is complete.
- If the time setting device memory is changed after a start operation completes, the end operation is not performed. The subsequent start operation is performed at the changed time.

 For details on the acknowledgment bit, refer to "Designation: Device" page 3-12.

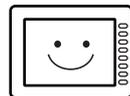
Other

If multiple schedule times (start or end times) overlap, operations start in order from the lowest schedule number.

If the scheduled time of a subsequent operation is reached during execution of an operation within the same schedule number, the subsequent operation is not executed until the current operation is complete. Therefore, the subsequent operation is delayed.

MEMO

MONITOUCH



4 Operation Log

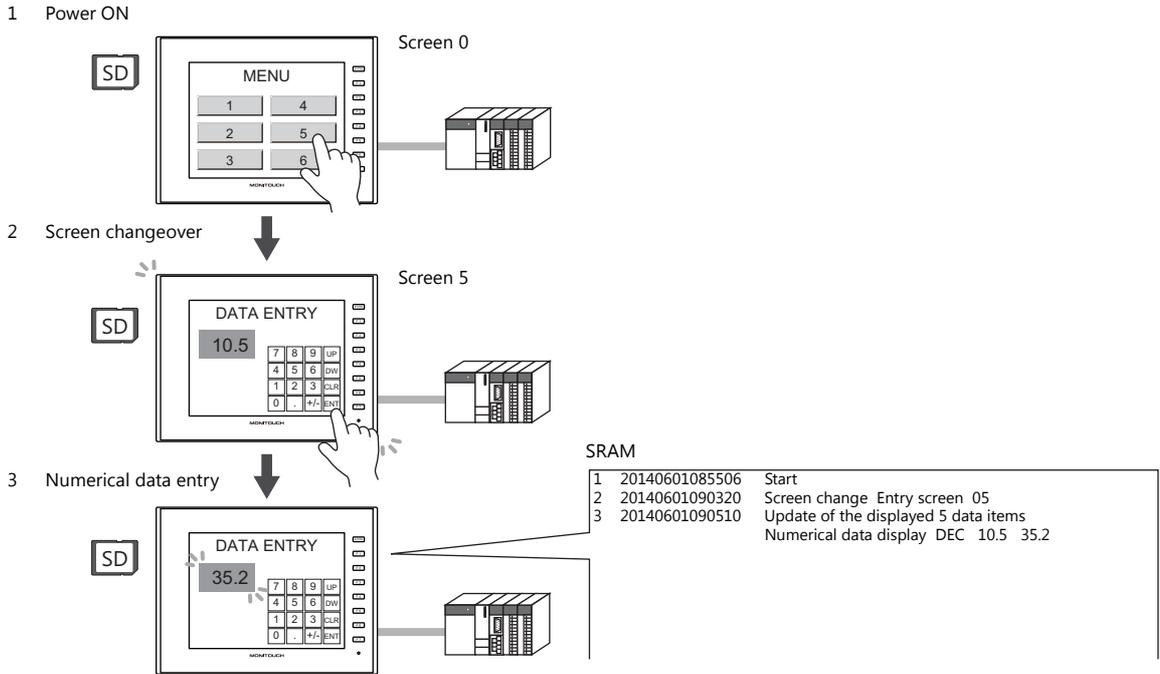
4.1 Overview

4.1.1 Operation Log

Operation Overview

The operation log function stores screen operation history records (operation logs) in the SRAM area. When the SRAM area becomes full, logs can be output to an SD card.

In the event of an error, these stored logs allow previous operations to be examined in order to determine the cause of the error. Also, when used in conjunction with the security function, operator names can also be recorded.



Operation Log Viewer

Operation history records (operation logs) stored in the SRAM area can be displayed on MONITOUCH using the operation log viewer.

The details of operations that were performed when an error occurred can be easily examined in order to determine the cause of the error.

No.	Date / Time	Screen No.	User ID	Security Level	Action
1	2014/04/12 07:51	35		0	Switch Act
2	2014/04/12 07:51			0	ScrnChg
3	2014/04/12 07:51	18		0	Switch Act
4	2014/04/12 07:51			0	ScrnChg
5	2014/04/12 07:51	40		0	Switch Act
6	2014/04/12 07:51			0	ScrnChg
7	2014/04/12 07:51	6		0	Switch Act
8	2014/04/12 07:51			0	ScrnChg
9	2014/04/12 07:51	5		0	Switch Act
10	2014/04/12 07:51	5		0	Switch Act
11	2014/04/12 07:51			0	ScrnChg
12	2014/04/12 07:51			0	ScrnChg
13	2014/04/12 07:51	7		0	Switch Act
14	2014/04/12 07:51			0	ScrnChg
15	2014/04/12 07:51	8		0	Switch Act
16	2014/04/12 07:51			0	ScrnCha

Double-tap

2014/04/12 07:51

Screen No. : 35

User ID :

Security Level : 0

Action : Switch Action

Function : Screen

Comment :

SW_00000

Display Format :

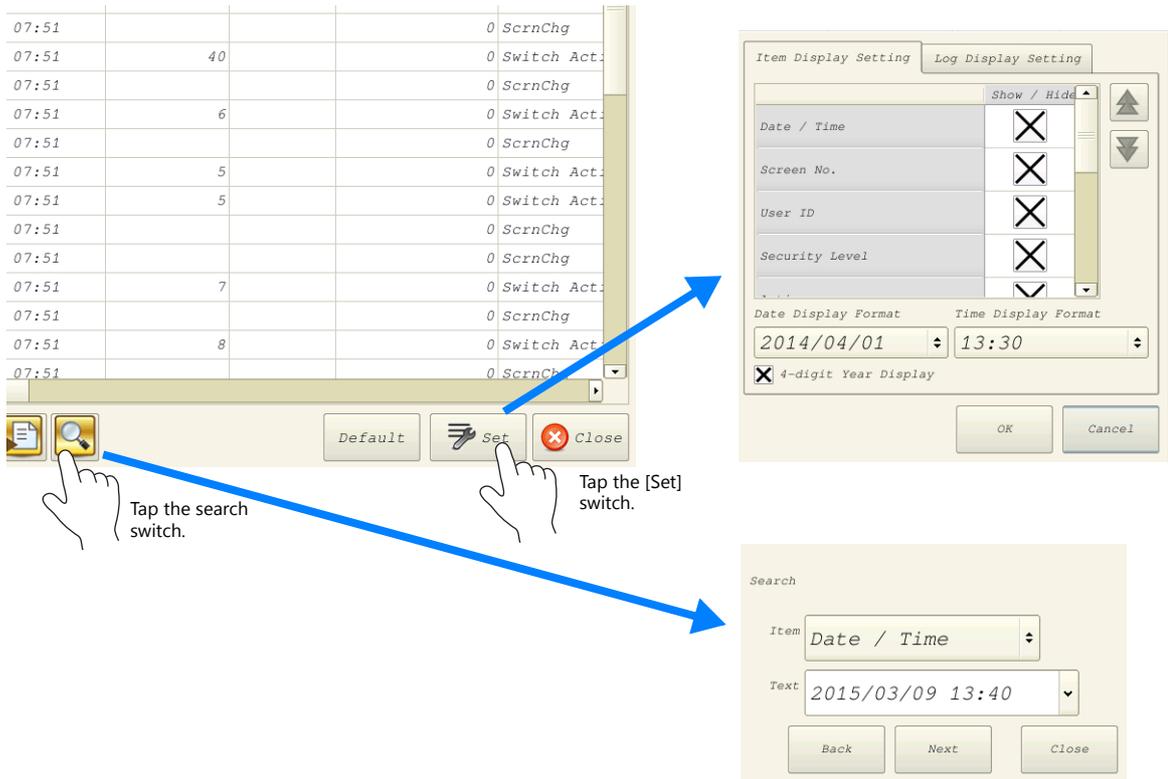
Value (Before) :

Value (After) :

Close

Log details are displayed.

Use the [Set] switch in the log viewer screen to show/hide items, set the number of characters, and change the date/time format. Use the search switch to select and search for items.

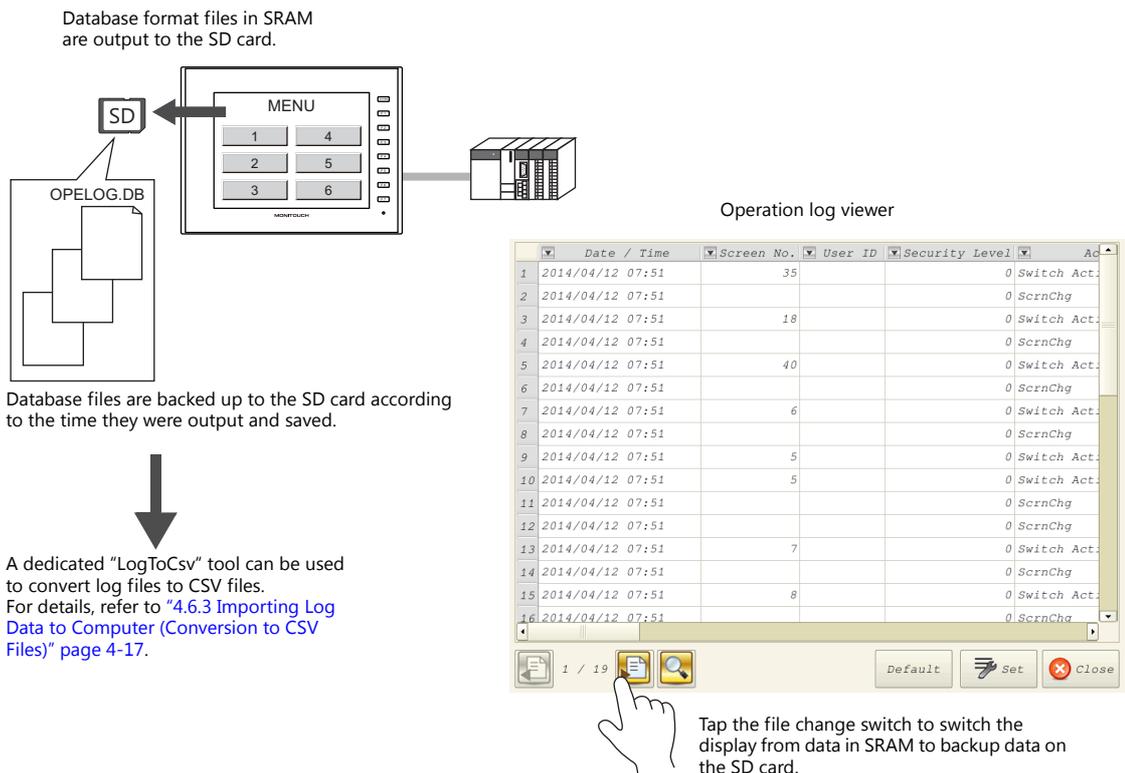


For details on the log viewer, refer to "4.5 Operation Log Viewer" page 4-11.

Log Storage

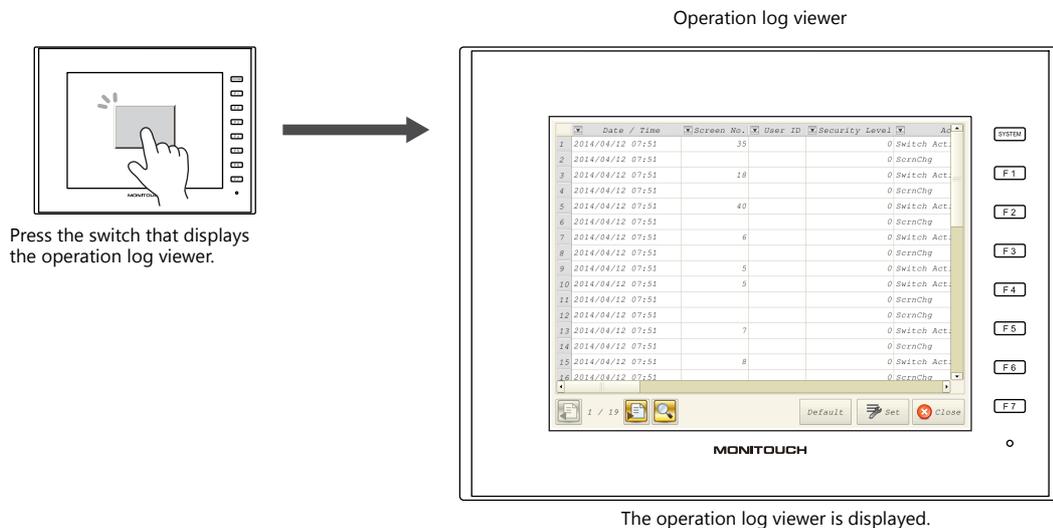
When the SRAM area becomes full, logs are written to an SD card. In addition to the logs stored in the SRAM area, the log files output to an SD card can also be displayed in the log viewer.

Log files written to an SD card are database format files. A dedicated tool "LogToCsv" will be available to convert such log files to CSV files so their contents can be viewed.



4.2 Using the Operation Log Viewer

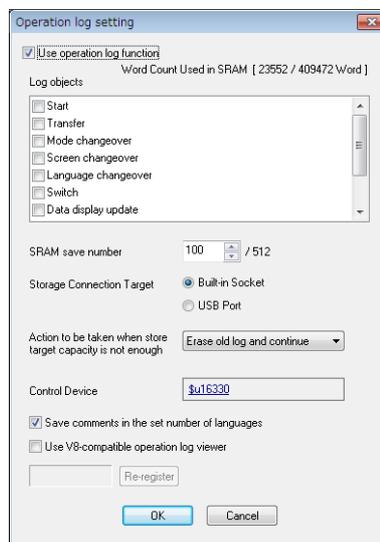
4.2.1 Conceptual Operation



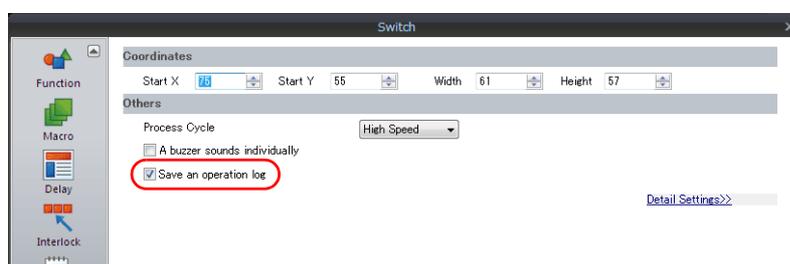
4.2.2 Setting Procedure

Configuring the Operation Log

1. Click [System Setting] → [Other] → [Operation log Setting]. The [Operation log setting] window is displayed.
2. Select the [Use operation log function] checkbox and select the checkboxes of the relevant items under [Log objects].



3. Set the number of logs to save in SRAM with [SRAM save number].
 4. Select the how to connect the SD card with [Storage Connection Target].
 5. Set any other relevant settings and then click [OK].
- * When [Switch] or [Data display update] are selected under [Log objects], the [Save an operation log] checkbox must be selected in the settings window of switches, numerical data displays, and character displays targeted for logging.



Operation Log Viewer Settings

1. Place a switch for displaying the operation log viewer.
2. Select [Operation Log Viewer Display] in the [Function] settings.

This completes the necessary settings. The screen program can be transferred to MONITOUCH.

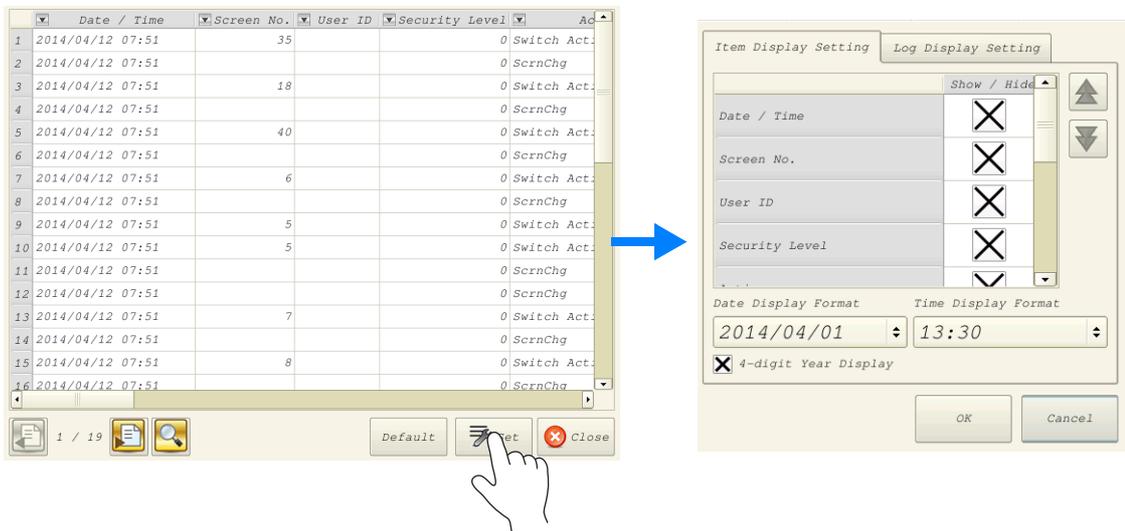
4.2.3 Operating Procedure

Displaying the Operation Log Viewer

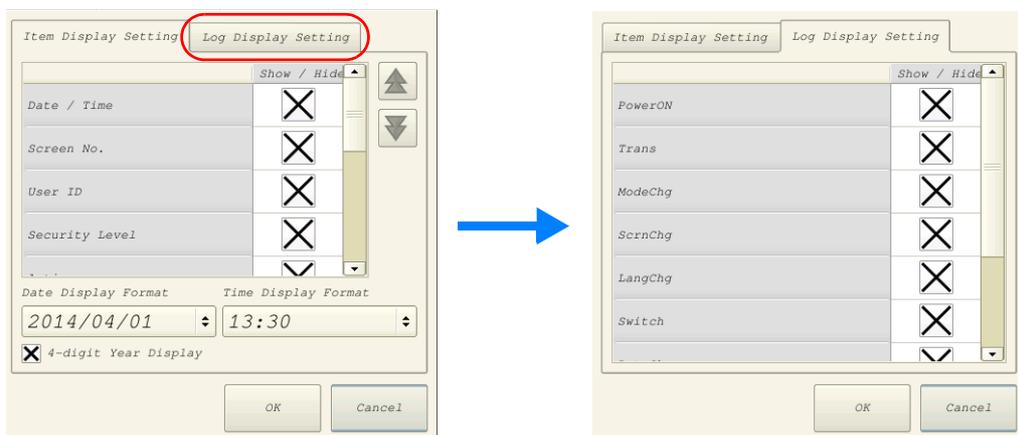
1. Display the screen that contains the switch configured above on MONITOUCH.
2. Press the switch to display the operation log viewer.
 - * The operation log viewer can be displayed in both RUN mode and Local mode.

Settings Menu

1. Press the [Set] switch. The window shown below is displayed.



2. Change the order of titles, hide unnecessary display items, and change the date and time format as desired.
3. To hide log items, switch to the [Log Display Settings] tab window.



For details on other log viewer settings, refer to "4.5 Operation Log Viewer" page 4-11.

4.3 Applicable Items

4.3.1 Applicable Items and Saving

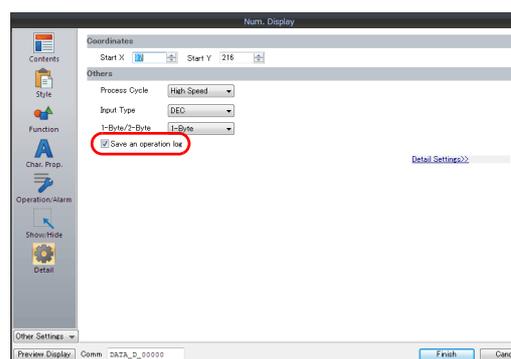
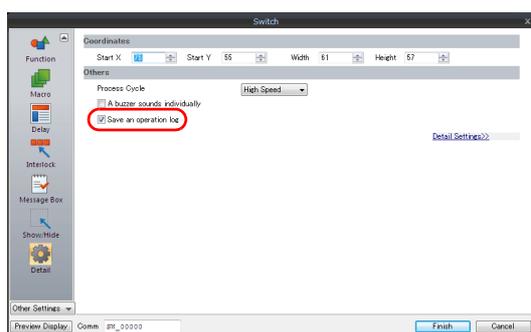
Applicable Items and Timing of Saving

The table below shows the items that can be saved to operation logs and when saving to SRAM takes place.

Items	Timing of Saving																
Start	When power is turned ON																
Transfer	When transferring a screen program or the I/F driver ^{*1}																
Mode changeover	When changing between RUN mode and local mode																
Screen changeover	When changing between screens																
Language changeover	When changing between languages																
Switch	When a switch with any of the following functions is pressed. ^{*2} <table border="1"> <thead> <tr> <th colspan="2">With output device memory</th> <th>Momentary, Set, Reset, Alternate, Momentary W, Word Operation</th> </tr> </thead> <tbody> <tr> <td rowspan="6">Function</td> <td>Standard</td> <td>Screen, overlap display, multi-overlap display, reset, card formatting, card removal, language changeover</td> </tr> <tr> <td>Entry</td> <td>Delete (alarms only)</td> </tr> <tr> <td>Card</td> <td>Card formatting, transfer from card to PLC, transfer from PLC to card</td> </tr> <tr> <td>Digital switch</td> <td>Digital switch +, digital switch –</td> </tr> <tr> <td>JPEG</td> <td>File deletion</td> </tr> <tr> <td>Security</td> <td>Login/Logout</td> </tr> </tbody> </table>	With output device memory		Momentary, Set, Reset, Alternate, Momentary W, Word Operation	Function	Standard	Screen, overlap display, multi-overlap display, reset, card formatting, card removal, language changeover	Entry	Delete (alarms only)	Card	Card formatting, transfer from card to PLC, transfer from PLC to card	Digital switch	Digital switch +, digital switch –	JPEG	File deletion	Security	Login/Logout
With output device memory		Momentary, Set, Reset, Alternate, Momentary W, Word Operation															
Function	Standard	Screen, overlap display, multi-overlap display, reset, card formatting, card removal, language changeover															
	Entry	Delete (alarms only)															
	Card	Card formatting, transfer from card to PLC, transfer from PLC to card															
	Digital switch	Digital switch +, digital switch –															
	JPEG	File deletion															
	Security	Login/Logout															
Data display update ^{*2 *3}	When updating numerical data/character displays in entry mode (Write/↓/↑ keys)																
Storage Writing Error	When an error occurs during writing into an SD card * 1024 words are used in SRAM. The words in use are added and displayed at [Unit Setting] → [SRAM/Clock Setting] → [Operation log storage point].																
Log destruction	When newly storing log data after clearing the SRAM area due to the reasons below: <ul style="list-style-type: none"> SRAM data corruption Failure to output to SD card 																
Scheduler	When the scheduler starts or ends																

*1 Logging does not take place when transferring system programs of MONITOUCH.

*2 Logs can be saved for switches, numerical data display, and character displays when the [Save an operation log] checkbox is selected in the [Detail] settings of the item's settings window. (Default: selected)



*3 Table data display is not supported.

Saved Items (Titles)

The following item types are saved.

Saved Item (Title)	Description	Max. No. of Characters (Bytes)
Log No.	-	-
Date/Time	Date/time of log acquisition	-
Screen No.	Screen number (0 to 9999)	-
User ID	User ID registered in security settings	8
Security Level	Security level (0 to 15)	-
Action	(Differs depending on the log item. For details on the saved content for each item, refer to the sections below.)	-
Function	(Differs depending on the log item. For details on the saved content for each item, refer to the sections below.)	-
Comment	Comments on screens and parts	32
Display Format	Display format of numerical data displays	-
Value (Before)	Value before change	-
Value (After)	Value after change	-

Start

Date/Time	Screen No.	User ID	Security Level	Action	Function	Comment	Display Format	Value (Before)	Value (After)
○	-	-	-	○	-	-	-	-	-

Details of items are as follows:

Action	Start
--------	-------

Transfer

Date/Time	Screen No.	User ID	Security Level	Action	Function	Comment	Display Format	Value (Before)	Value (After)
○	-	-	-	○	○	-	-	-	-

Details of items are as follows:

Action	Transfer
Function	Screen program
	Driver, expansion program

Mode Changeover

Date/Time	Screen No.	User ID	Security Level	Action	Function	Comment	Display Format	Value (Before)	Value (After)
○	-	-	-	○	○	-	-	-	-

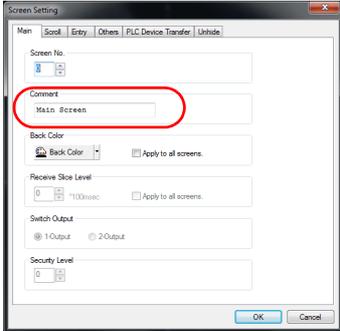
Details of items are as follows:

Action	Mode changeover
Function	Change to RUN mode
	Change to Local mode

Screen Changeover

Date/Time	Screen No.	User ID	Security Level	Action	Function	Comment	Display Format	Value (Before)	Value (After)
○	-	○	○	○	-	○	-	○	○

Details of items are as follows:

Action	Screen changeover
Comment	The comment entered in the [Screen Setting] → [Screen Setting] window is stored. When no comment is entered, the [Comment] field is blank. 
Value (Before)	Stores the screen number before changeover.
Value (After)	Stores the screen number after changeover.

Language Changeover

Date/Time	Screen No.	User ID	Security Level	Action	Function	Comment	Display Format	Value (Before)	Value (After)
○	-	○	○	○	-	-	-	○	○

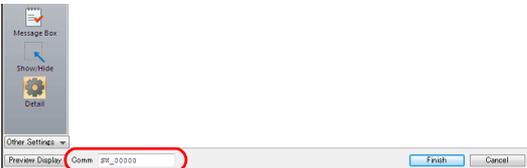
Details of items are as follows:

Action	Language changeover
Value (Before)	Stores the language number before changeover.
Value (After)	Stores the language number after changeover.

Switch

Date/Time	Screen No.	User ID	Security Level	Action	Function	Comment	Display Format	Value (Before)	Value (After)
○	○	○	○	○	○	○	-	-	-

Details of items are as follows:

Action	Switch operations (Mom)/(Set)/(Rst)/(Alt)/(Word)/(Sample)/(Alm)
Function	Screen Overlap display/multi-overlap display Word Operation Reset Card formatting/card removal Language changeover DELETE Transfer from card to PLC / transfer from PLC to card Digital switch +, digital switch - File deletion Login/Logout
Comment	Outputs the comment in the switch's settings window. 

Data Display Update

Date/Time	Screen No.	User ID	Security Level	Action	Function	Comment	Display Format	Value (Before)	Value (After)
○	○	○	○	○	○	○	○	○	○

Details of items are as follows:

Action	Data Display Update
Function	Numerical display
	Character display
Comment	<p>Outputs the comment in the numerical data display's and character display's settings window.</p> 

Storage Writing Error

Date/Time	Screen No.	User ID	Security Level	Action	Function	Comment	Display Format	Value (Before)	Value (After)
○	-	-	-	○	○	○	-	-	-

Details of items are as follows:

Action	Writing error detection
Function	Power OFF
	Card removal
Comment	<p>The directory path of the drive or file where an error has occurred is output.</p> <ul style="list-style-type: none"> • Error when accessing SD card: "Drive name:\Directory Information" Example: For built-in socket: "C:\Directory Information" • Error when accessing files: "Drive name:\Full path"* Example: When an error occurred during writing of "REC0000.CSV" in recipe mode C:\DAT0000\RECIPE\REC0000.CSV <p>* When the number of characters exceeds 32 one-byte characters (16 two-byte characters), the top of the pathname is omitted and displayed as "...". Example: C:\.\RECIPE\REC0000.CSV</p>

Log Destruction

A log is saved when the SRAM area is cleared and newly saving logs because of SRAM data corruption or failure to output to the SD card. The log contains the data items below.

Date/Time	Screen No.	User ID	Security Level	Action	Function	Comment	Display Format	Value (Before)	Value (After)
○	-	-	-	○	-	-	-	-	-

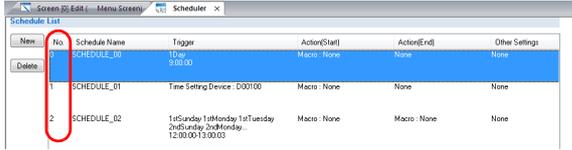
Details of items are as follows:

Action	Log destruction
--------	-----------------

Scheduler

Date/Time	Screen No.	User ID	Security Level	Action	Function	Comment	Display Format	Value (Before)	Value (After)
○	-	-	-	○	○	○	-	-	-

Details of items are as follows:

Action	Scheduler
Function	Start operation End operation
Comment	The schedule number (0 to 63) is stored. 

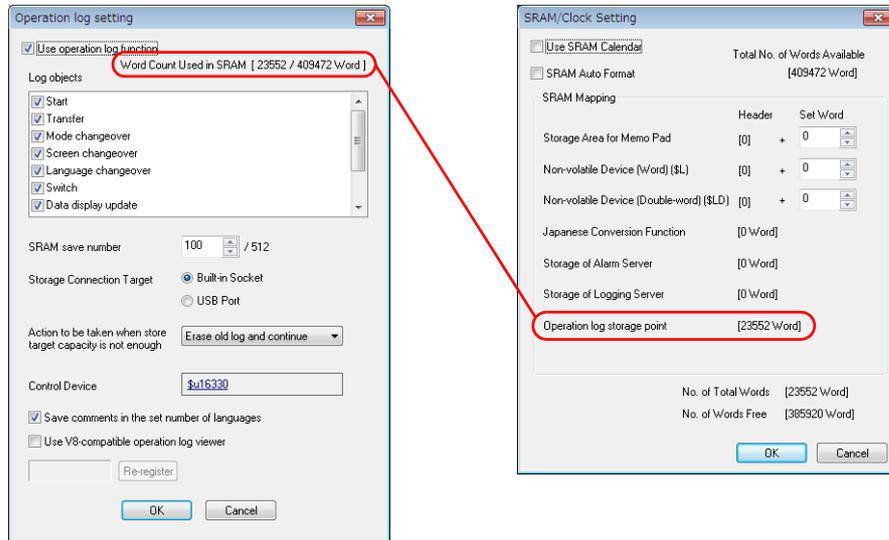
4.4 Detailed Settings

Operation Log Settings

Select the [Use operation log function] to enable the following items.

Item	Description
Log objects	Select the checkboxes of the items to save to operation logs. For details, refer to “4.3 Applicable Items” page 4-5 .
SRAM save number *1 *2	Set the number of logs to be stored in the SRAM area.
Storage Connection Target	Select how to connect the SD card, to which operation logs will be output.
Action to be taken when store target capacity is not enough	Select the action to take when the SD card is full.
Control Device *3	Set the device memory for outputting log data to the SD card.
Save comments in the set number of languages *1	This setting is available when using the multi-language function and saving items displayed under [Log objects] that support comments. When selected, comments are saved to logs even in multi-language mode (when displaying a language other than the primary language). When using “LogToCsv.exe”, comments can be output to CSV file in the selected language. For details, refer to “4.6.3 Importing Log Data to Computer (Conversion to CSV Files)” page 4-17 .
Use V8-compatible operation log viewer	This checkbox is selected automatically when converting from a V8 series screen program.

*1 The required amount of SRAM is automatically secured based on the [SRAM save number] setting.



*2 The maximum number of logs that can be saved differs depending on whether or not the multi-language function is used.

Refer to the chart shown below.

Number of Languages	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Maximum number of Logs	512	512	512	431	360	309	269	238	215	195	179	165	152	142	134	126

*3 Control Device

Control device memory	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Reserved for system Bit for card output

- Bit 0: bit for output to card
SRAM log data is output to the card when the bit state changes from 0 to 1.

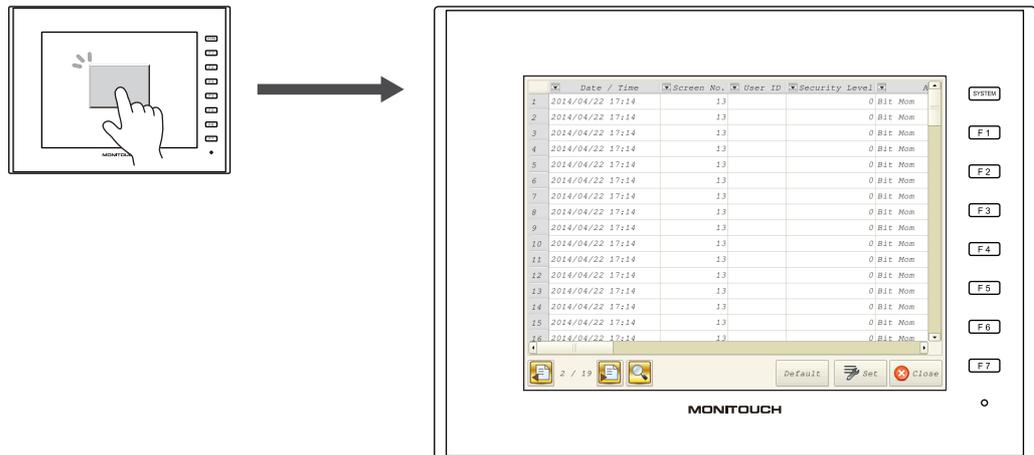
4.5 Operation Log Viewer

4.5.1 Display Method

The operation log viewer can be displayed in both RUN mode and Local mode.

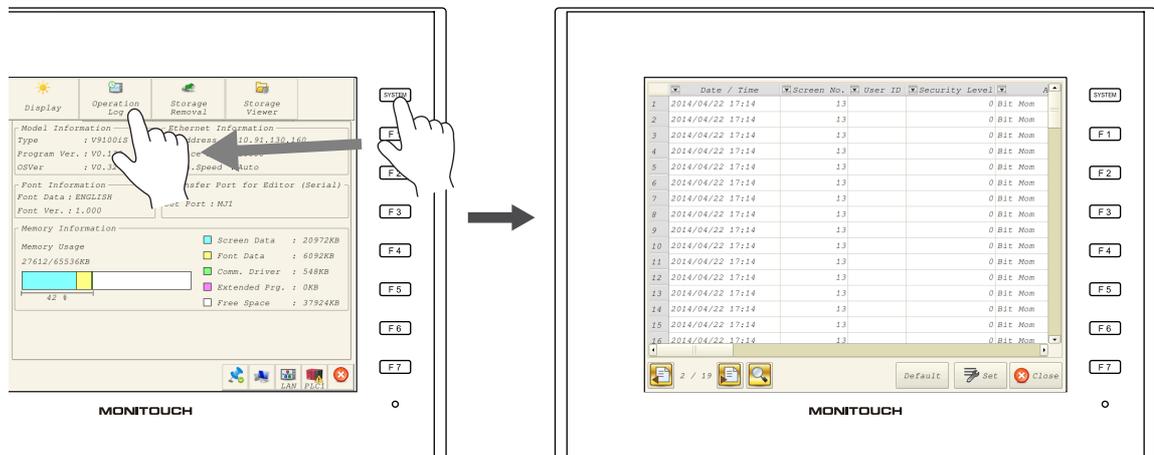
RUN Mode

Press a switch configured with [Operation Log Viewer Display] for [Function] to display the operation log viewer.



Local Mode

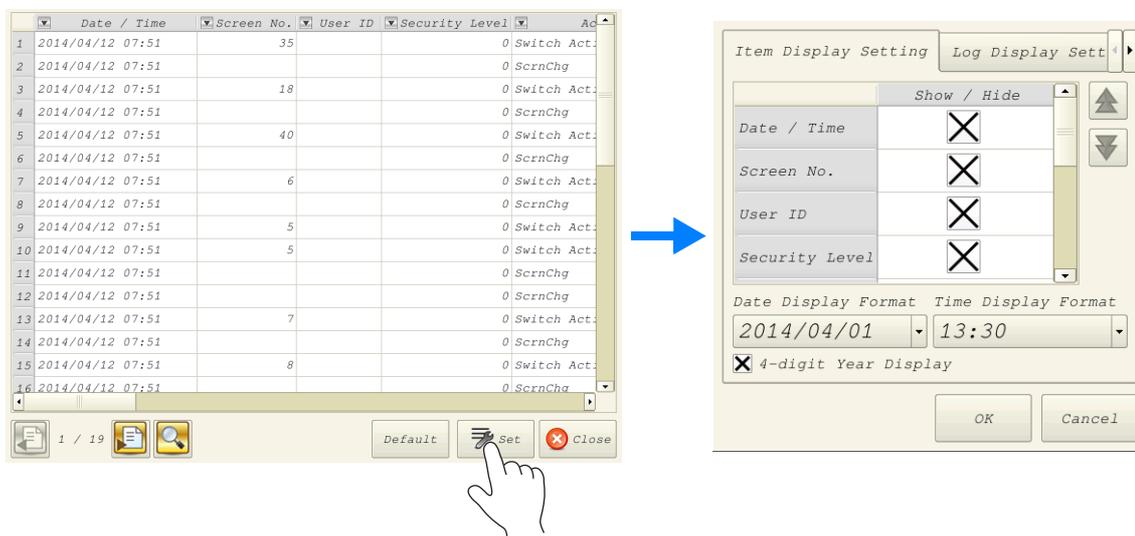
Press the [SYSTEM] button to display the system menu.
Tap the [Operation Log] switch to display the operation log viewer.



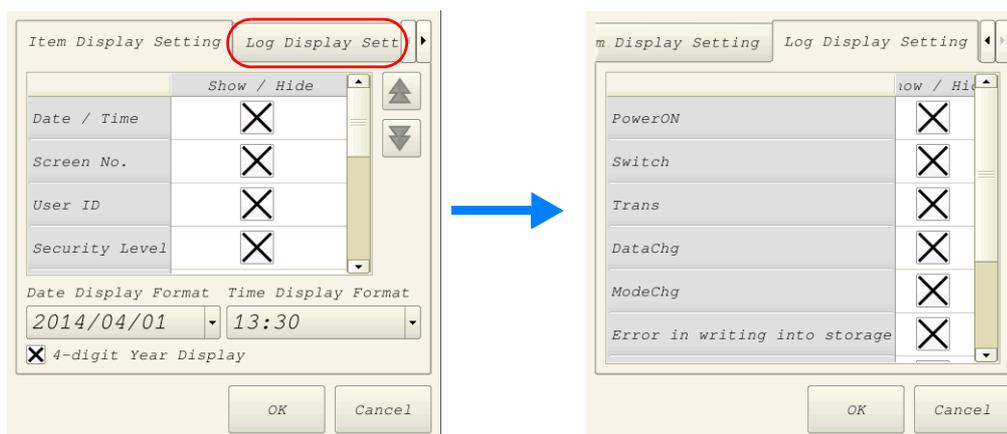
4.5.2 Function

Showing/Hiding Items

Tap the [Set] switch in the operation log viewer. The settings window shown below is displayed.



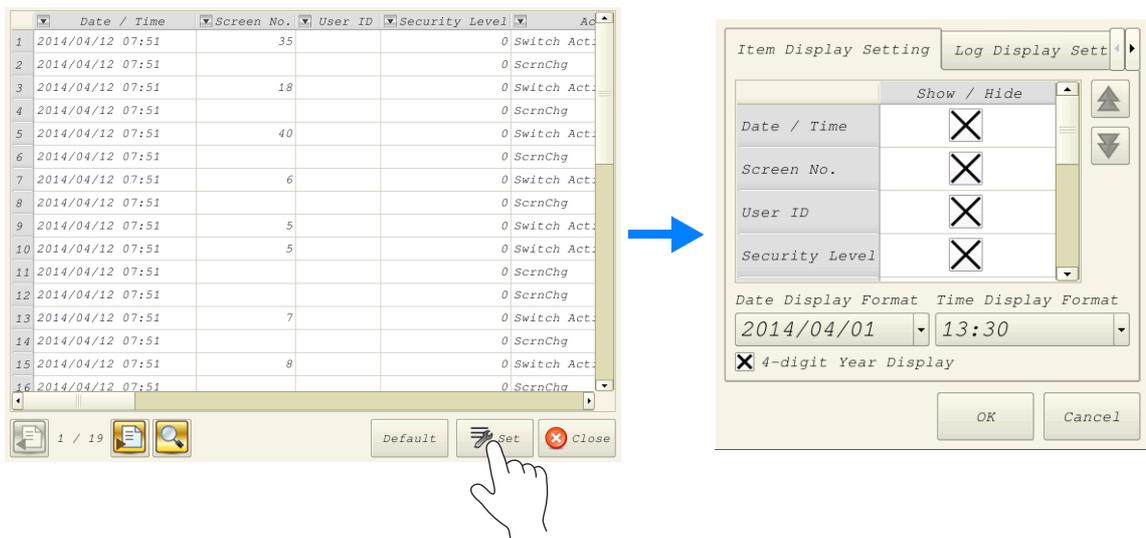
Select the [Log Display Setting] tab to check a list of items that can be displayed in the operation log viewer. Deselect the checkbox of items to hide and click [OK] to only display items with a selected checkbox.



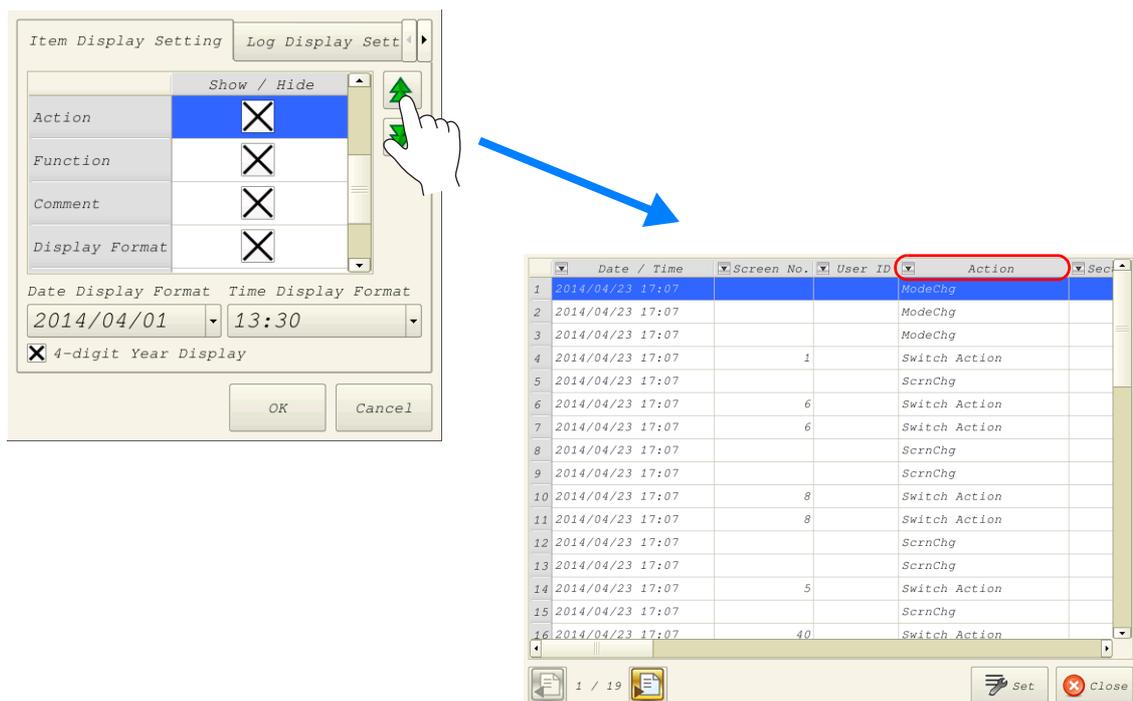
The settings made in this window are stored in SRAM and therefore are retained even if the power is turned off and on.

Changing Order of Display

Tap the [Set] switch in the operation log viewer. The settings window shown below is displayed.



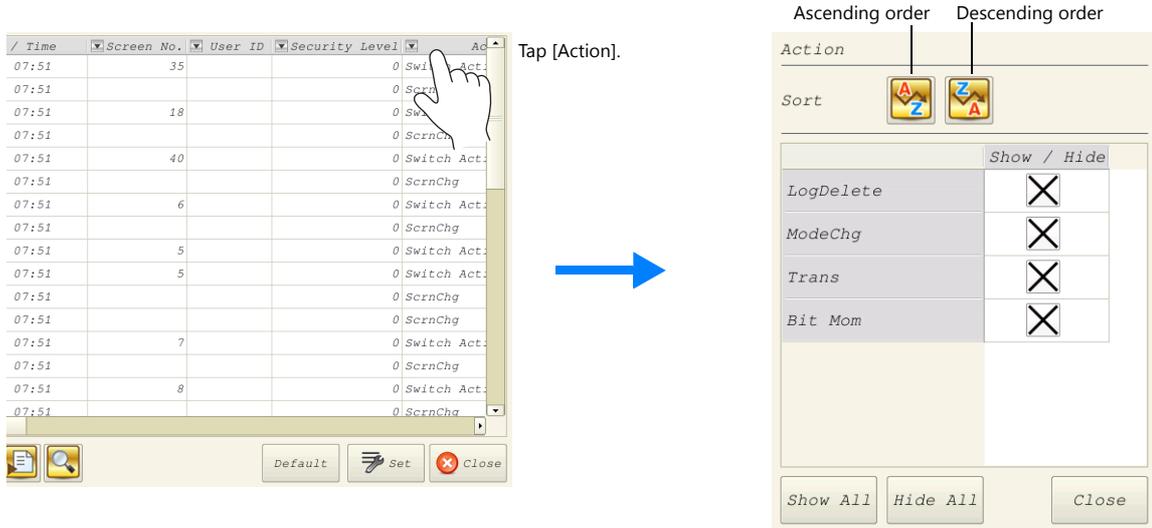
Select the title to move on the [Item Display Setting] tab window and press the [↑] or [↓] switch. The display order changes accordingly. Items are displayed in this order on the operation log viewer of MONITOUCH



The settings made in this window are stored in SRAM and therefore are retained even if the power is turned off and on.

Filter

Tap an item in the title bar of the operation log viewer. The following filter window is displayed.



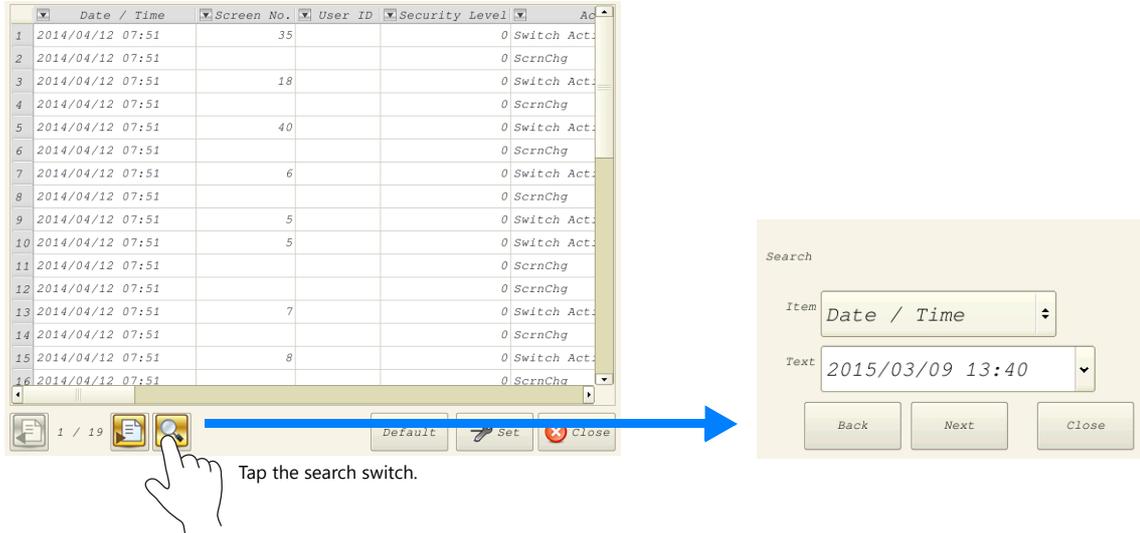
Sort the display using the ascending and descending order switches.

If there are items you wish to hide, deselect the relevant checkbox and click [Close] to only display items with a selected checkbox.

To restore the default display settings, tap the [Default] switch or the file change switch, or close and open the operation log viewer.

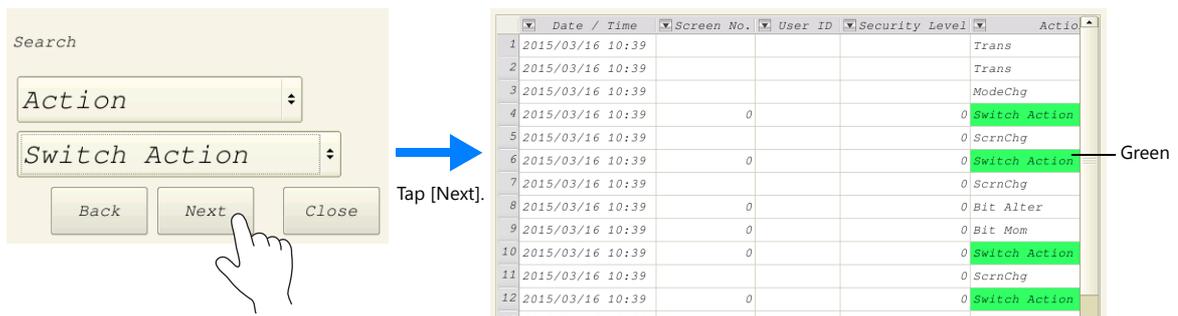
Search

Tap the search switch in the operation log viewer. The following search window is displayed.



Select the item and text to search for and tap [Next]. Cells that match the search are highlighted in green on the viewer.

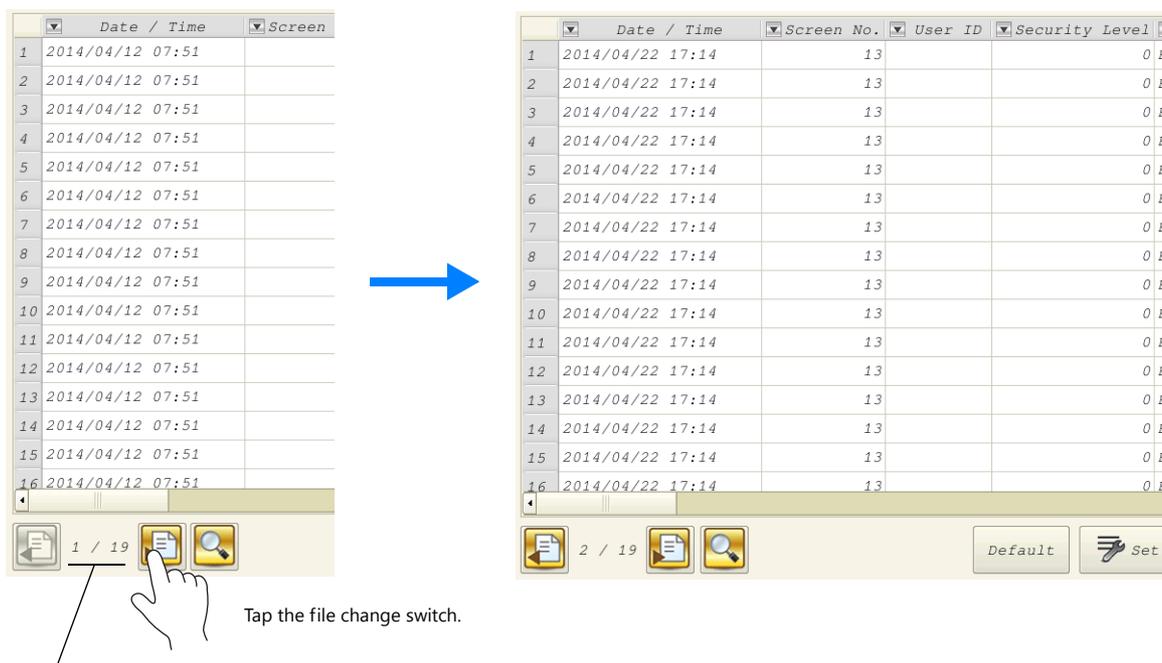
To clear the highlighted display, tap the [Default] switch or the file change switch, or close and open the operation log viewer.



* The currently displayed items of the current file are searched. Hidden items are excluded.

Changing Between Log Files

Tap the file change switch in the operation log viewer. This switches the display between the log database file in SRAM and the log database file on the SD card.



* When the indicator shows "1/n", this means that the log in SRAM is being displayed.

4.5.3 Note

Display Priority

The operation log viewer is displayed on the screen with the same priority as the system menu. This means it is displayed on top of other items.

Language of the Operation Log Viewer

The display language of the operation log viewer depends on the display language of Local mode.

In addition to Japanese, the operation log viewer can be displayed in English, Chinese (Traditional), Chinese (Simplified), and Korean.

▼	▼ 日期 / 时间	▼ 屏幕号	▼ 用户名	▼ 安全等级	▼ 动作	▼ 功能
1	2014/04/23 17:07				模式切换	到RUN
2	2014/04/23 17:07				模式切换	到本地
3	2014/04/23 17:07				模式切换	到RUN
4	2014/04/23 17:07	1		0	开关动作	屏幕
5	2014/04/23 17:07			0	屏幕切换	
6	2014/04/23 17:07	6		0	开关动作	屏幕
7	2014/04/23 17:07	6		0	开关动作	屏幕
8	2014/04/23 17:07			0	屏幕切换	
9	2014/04/23 17:07			0	屏幕切换	
10	2014/04/23 17:07	8		0	开关动作	屏幕
11	2014/04/23 17:07	8		0	开关动作	屏幕
12	2014/04/23 17:07			0	屏幕切换	
13	2014/04/23 17:07			0	屏幕切换	
14	2014/04/23 17:07	5		0	开关动作	屏幕
15	2014/04/23 17:07			0	屏幕切换	
16	2014/04/23 17:07	40		0	开关动作	屏幕

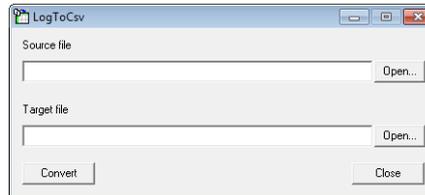
4.6.3 Importing Log Data to Computer (Conversion to CSV Files)

A log file output to a storage device can be converted to a CSV file for viewing using the dedicated "LogToCsv" tool. "LogToCsv.exe" is installed when V-SFT version 6 (Ver. 6.0.8.0 or later) is installed.

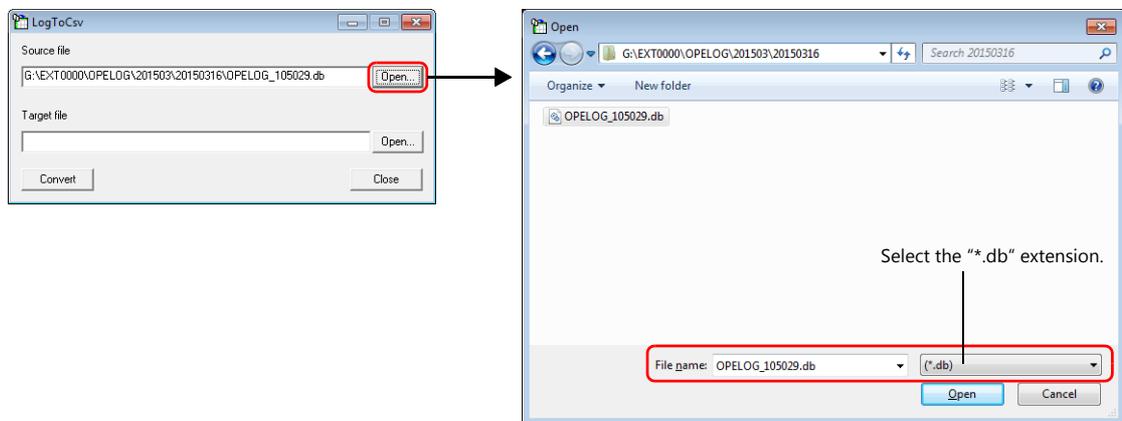
If the version of your V-SFT version 6 is an earlier one, download "LogToCsv.exe" from Hakko Electronics' website and install.

File Conversion Procedure

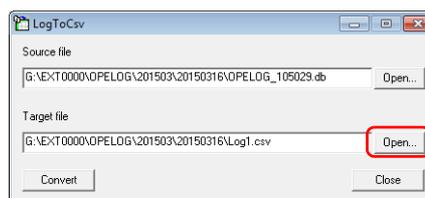
1. Click the start button and start "LogToCsv" from [All Programs] → [V-SFTV6].



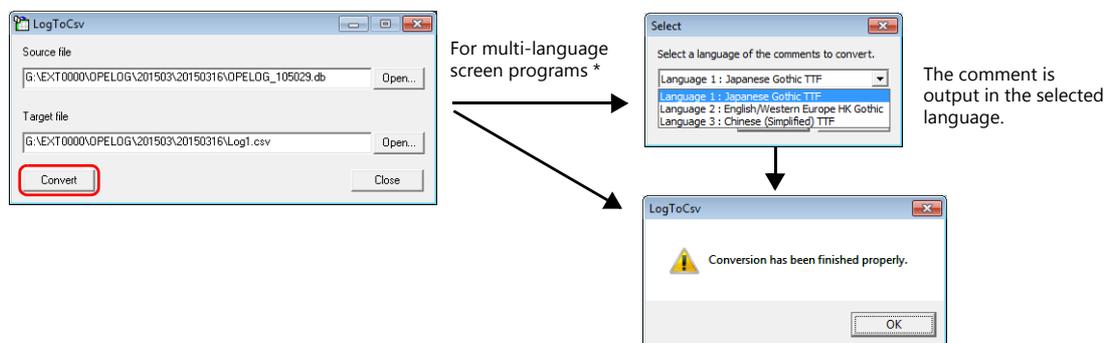
2. Click the [Open] button for [Source file] and select the log file to convert.



3. Click the [Open] button for [Target file] and specify the location for storing the CSV file and the filename.



4. Click the [Change] button. A conversion complete message is displayed and the CSV file is output to the specified location.



* To display the language selection window for comments, select the [Save comments in the set number of languages] checkbox at [System Setting] → [Other] → [Operation log Setting]. For details, refer to "4.4 Detailed Settings" page 4-10.

5. Open the CSV file.

No.	Date	Time	Scrn_No	User_ID	Level	Action	Function	Comment	Type	Prev_Val	Chg_Val
1	2014/7/23	1:28:53	-			0 ScrnChg	-			0	2
2	2014/7/23	1:28:56	2			0 Bit Mom	-	SW_00012	-	-	
3	2014/7/23	1:28:57	2			0 Bit Mom	-	SW_00012	-	-	
4	2014/7/23	1:28:58	2			0 Switch	Word Operation	SW_00000	-	-	
5	2014/7/23	1:29:06	-	-	-	ModeChg	To Local		-	-	
6	2014/7/23	1:29:13	-	-	-	ModeChg	To Run		-	-	
7	2014/7/23	1:29:15	0			0 Switch	Screen	SW_00000	-	-	
8	2014/7/23	1:29:15	-			0 ScrnChg	-			0	1
9	2014/7/23	1:29:20	-			0 ScrnChg	-			1	0
10	2014/7/23	1:29:22	0			0 Switch	Screen	SW_00000	-	-	
11	2014/7/23	1:29:22	-			0 ScrnChg	-			0	2
12	2014/7/23	1:29:28	2			0 Switch	Screen	SW_00000	-	-	
13	2014/7/23	1:29:28	-			0 ScrnChg	-			2	0
14	2014/7/23	1:29:29	0			0 Switch	Screen	SW_00000	-	-	
15	2014/7/23	1:29:30	-			0 ScrnChg	-			0	2
16	2014/7/23	1:32:21	2			0 Bit Mom	-	SW_00012	-	-	
17	2014/7/23	1:32:36	2			0 Bit Mom	-	SW_00012	-	-	
18	2014/7/23	1:32:37	2			0 Bit Mom	-	SW_00012	-	-	
19	2014/7/23	1:32:37	2			0 Bit Mom	-	SW_00012	-	-	
20	2014/7/23	1:32:39	2			0 Bit Mom	-	SW_00012	-	-	
21	2014/7/23	1:32:39	2			0 Bit Mom	-	SW_00012	-	-	
22	2014/7/23	1:32:40	2			0 Bit Mom	-	SW_00012	-	-	
23	2014/7/23	1:32:41	2			0 Bit Mom	-	SW_00012	-	-	
24	2014/7/23	1:32:44	2			0 Switch	Word Operation	SW_00000	-	-	
25	2014/7/23	1:32:54	2			0 Bit Mom	-	SW_00012	-	-	
26	2014/7/23	1:32:55	2			0 Bit Mom	-	SW_00012	-	-	
27	2014/7/23	1:32:55	2			0 Switch	Word Operation	SW_00000	-	-	
28	2014/7/23	1:32:55	2			0 Bit Mom	-	SW_00012	-	-	

For multi-language screen programs, comments are output in the selected language.

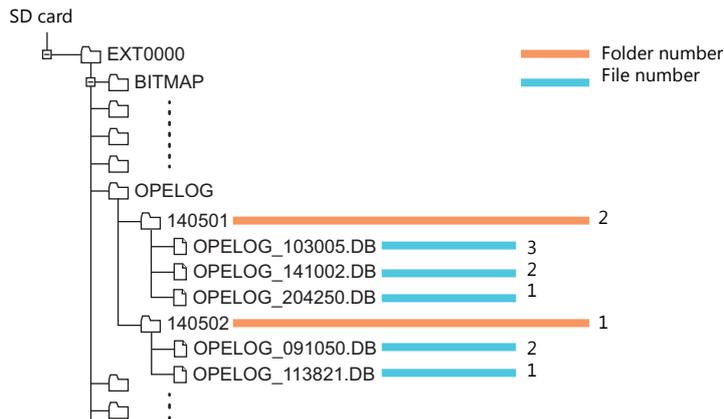
* The text is not Unicode. Check the text in an OS environment of the relevant language.

4.7 System Device Memory

The following describes the system device memory associated with the operation log viewer.

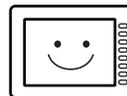
Addresses	Description	Remarks
\$s1365	File number of currently displayed log data	← V
\$s1366	Log folder number being displayed	

- * When the log data in SRAM is displayed, 0 is stored at both addresses \$s1365 and \$s1366.
 When a log file on a SD card is displayed, the files and folders stored on the SD card are numbered sequentially, starting at 1, from the file with the most recent datestamp.
 The following illustrates the numbering of files and folders.



MEMO

MONITOUCH



5 Security

5.1 Overview

Security

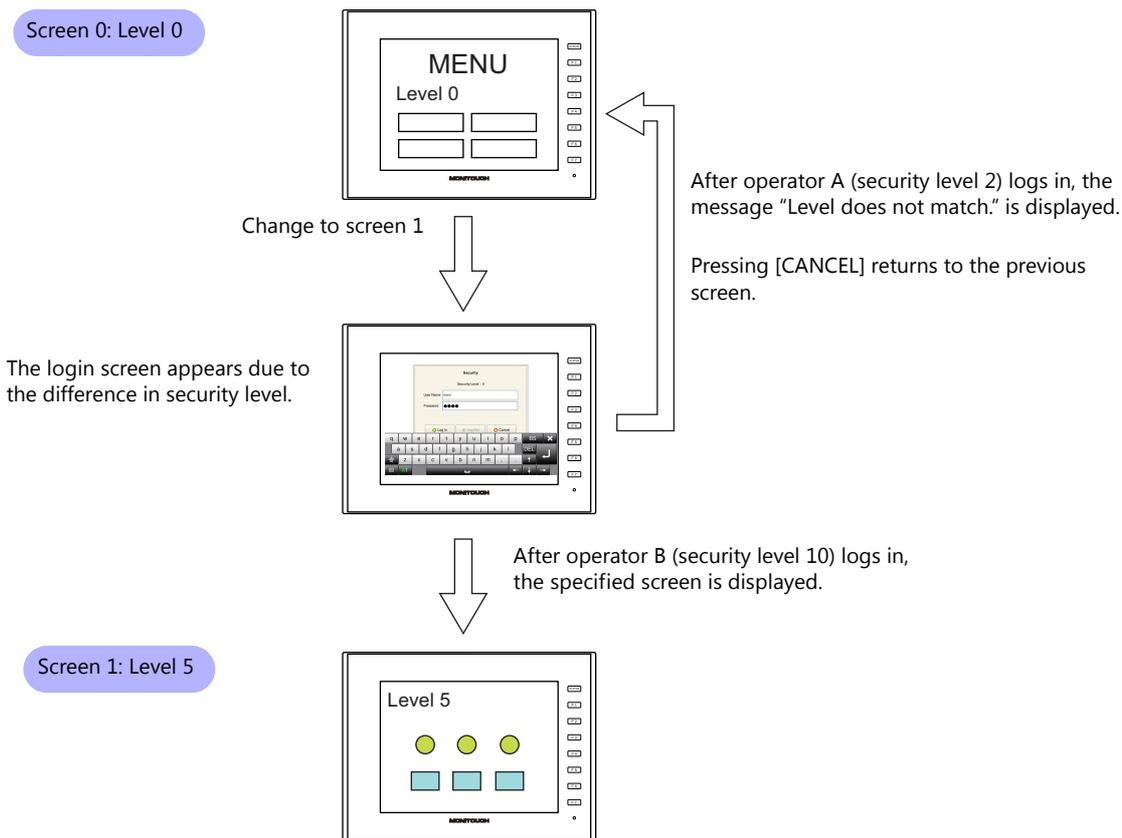
Registering user IDs and passwords at the required security levels in advance enables operators to control the display and operation of screens in accordance with their corresponding security level.

* Security levels are set on a scale from 0 to 15.

Security Level	Priority	Description
0	Low 	Screen display and operation permitted at level 0 (no security)
1		Screen display and operation permitted at levels 0 and 1
:		:
15	High	Screen display and operation permitted at all levels from 0 through 15

Screen Security Levels

A security level can be set for each screen. An attempt to switch to a higher-security screen will automatically display the login screen. The target screen can be displayed by entering a user ID and password at a level equivalent to or higher than the level required for the target screen.

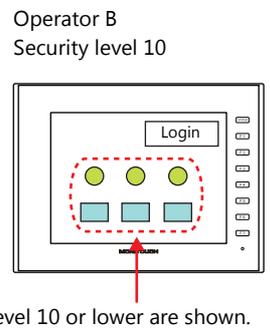
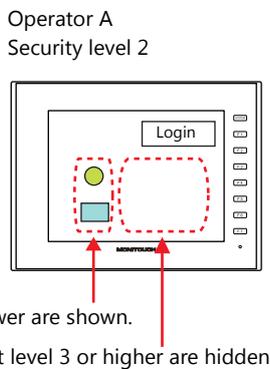
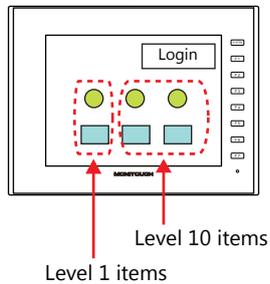


 For details on the location of settings, refer to [“Screen Settings” page 5-6.](#)

Item Security Levels

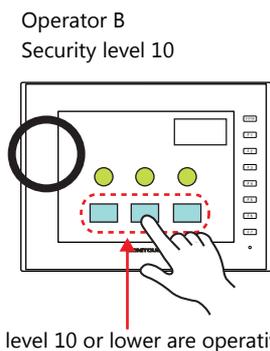
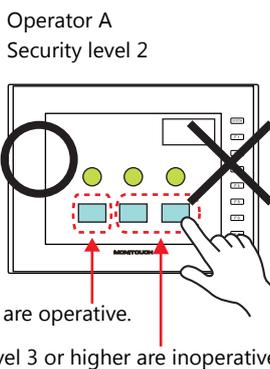
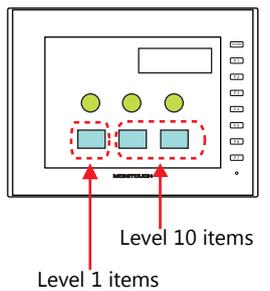
Security levels can be set for each item on the screen, such as switches and data displays. Once security levels are specified for screen items, these items can be shown or hidden based on the security level selected when an operator logs into the system. Also, switches can be configured with an interlock setting.

Showing/Hiding Items



For details on the location of settings, refer to “[Show/Hide] Settings in the Settings Window of Each Part” page 5-7.

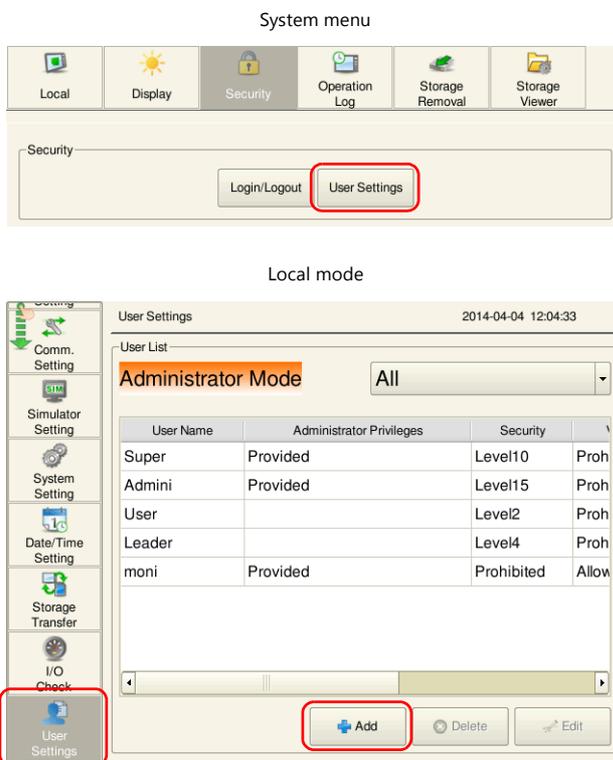
Prohibiting Switch Operations



For details on the location of settings, refer to “[Interlock] Settings in the [Switch] Settings Window” page 5-7.

User ID and Password Registration

User IDs and passwords can be set to screen programs in advance, but can also be added from the system menu of MONITOUCH (or in Local mode). The system offers the flexibility to add new users in situations where sudden changes are required on the factory floor.



* Only users with administrator privileges can register, edit, and delete user accounts.

Login/Logout

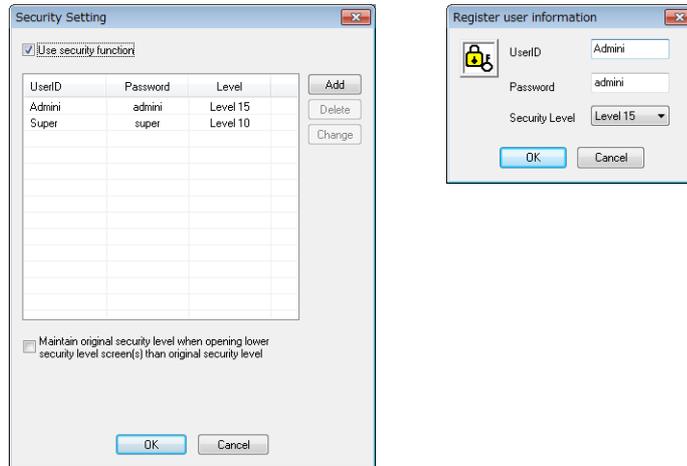
The security level can be changed by logging in or out with the screen that is automatically displayed when a screen change occurs as well as from the system menu or a switch.



 For details, refer to ["5.4 Login/Logout" page 5-8.](#)

5.2 Security Settings

Location of settings: [System Setting] → [Other] → [Security Setting].



Item	Description
Use security function	Select this checkbox to use the security function.
UserID *1 Password Level	Register user IDs, passwords, and security levels using the [Add], [Delete], and [Change] buttons. A maximum of 64 users can be registered. Use eight or less one-byte alphanumeric characters. Input is case-sensitive. * The same user ID cannot be registered more than once. However, the same password can be registered for different user IDs. All users registered to the screen program are granted administrator privileges.
Maintain original security level when opening lower security level screen(s) than original security level *2	Select the operation to perform when a screen change occurs. Unselected When switching to a screen with a lower security level, the currently valid security level is also lowered to the level of the target screen. When switching to a higher-security screen next, the operator is prompted to enter a password. Selected The same security level is maintained until the level is changed when another user logs in with a different security level or when the user logs out.

*1 User IDs and passwords can be registered from the system menu (or in Local mode). Only users with administrator privileges can register, edit, and delete user accounts. While users without administrator privileges can view a list of all users registered in a screen program, editing and deletion is prohibited.

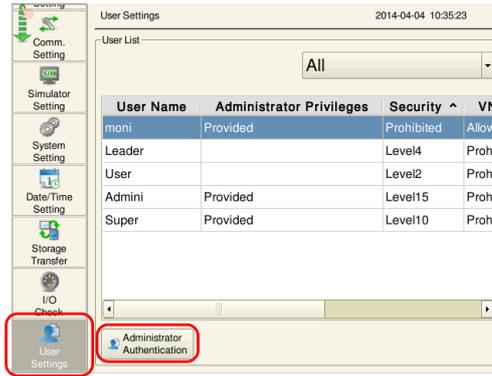


The currently logged in administrator user's account can be deleted. After deletion, the screen returns to the administrator authentication screen. Other administrators' accounts cannot be deleted.

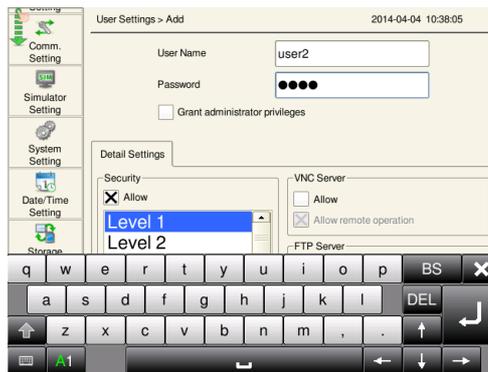
- System menu → [Security] → [User Settings] → enter administrator user ID and password



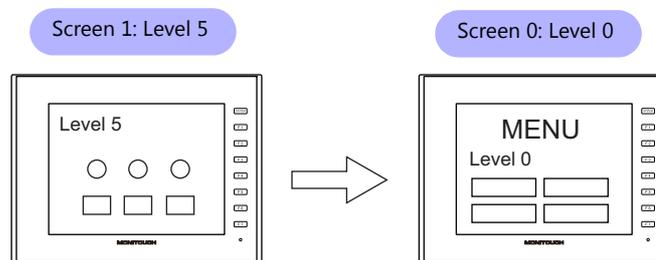
- Local mode → [User Settings] → [Administrator Authentication] → enter administrator user ID and password



User registration screen



- *2 When the currently displayed screen is switched to a lower-security screen, the security level may be maintained or automatically lowered, depending on the selected option.



- Level lowered

Security level 5

Security level 0

- * The operator must log in again in order to switch to a higher-security screen.

- Level maintained

Security level 5

Security level 5

- * The security level is maintained until a login or logout is performed.

5.3 Security Level Settings

The security level can be set at the following three locations. The setting procedure at each location is different.

- Screen settings (page 5-6)
- [Show/Hide] settings in the settings window of each part (page 5-7)
- [Interlock] settings in the [Switch] settings window (page 5-7)

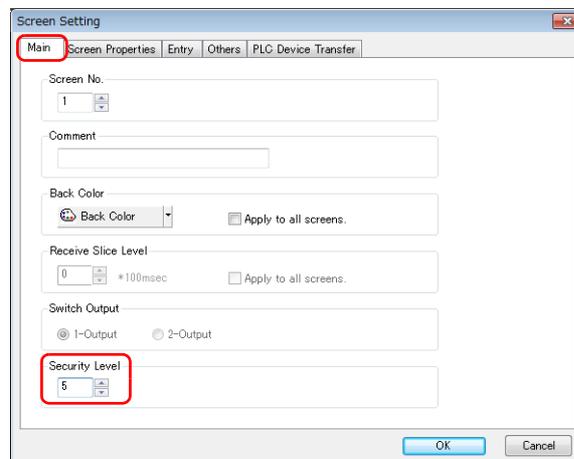
Screen Settings

Screen switching can be prohibited according to security level.

Location of settings

[Screen Setting] → [Screen Setting] → [Main] tab window → [Security Level] setting

Security level: 0 to 15



[Show/Hide] Settings in the Settings Window of Each Part

Screen items can be shown or hidden according to their security level.

Applicable items

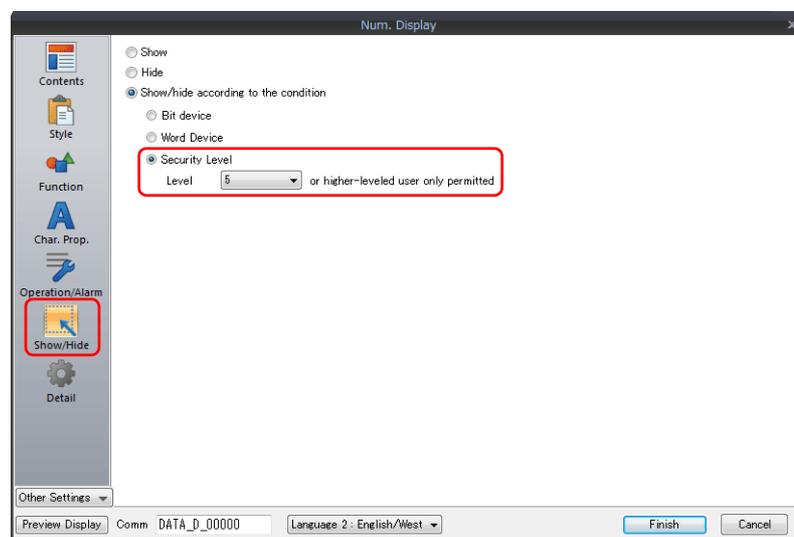
The following items can be configured with security level settings.

- Switches, lamps
- Numerical data displays, character displays, message displays (excluding table data displays)
- Graphs, statistical graphs, closed area graphs
- Linked parts
- Grouped items (including graphic items)

Location of settings

In the setting window of each part, set the security level at [Show/Hide] → [Show/Hide according to the condition] → [Security Level].

Security level: 0 to 15



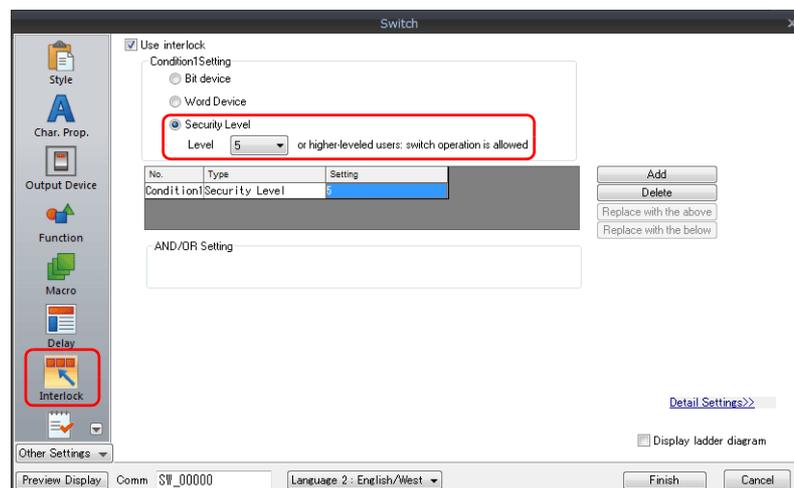
[Interlock] Settings in the [Switch] Settings Window

The operation of switches can be prohibited according to their security level.

Location of settings

In the switch settings window, set the security level at [Interlock] → [Security Level].

Security level: 0 to 15



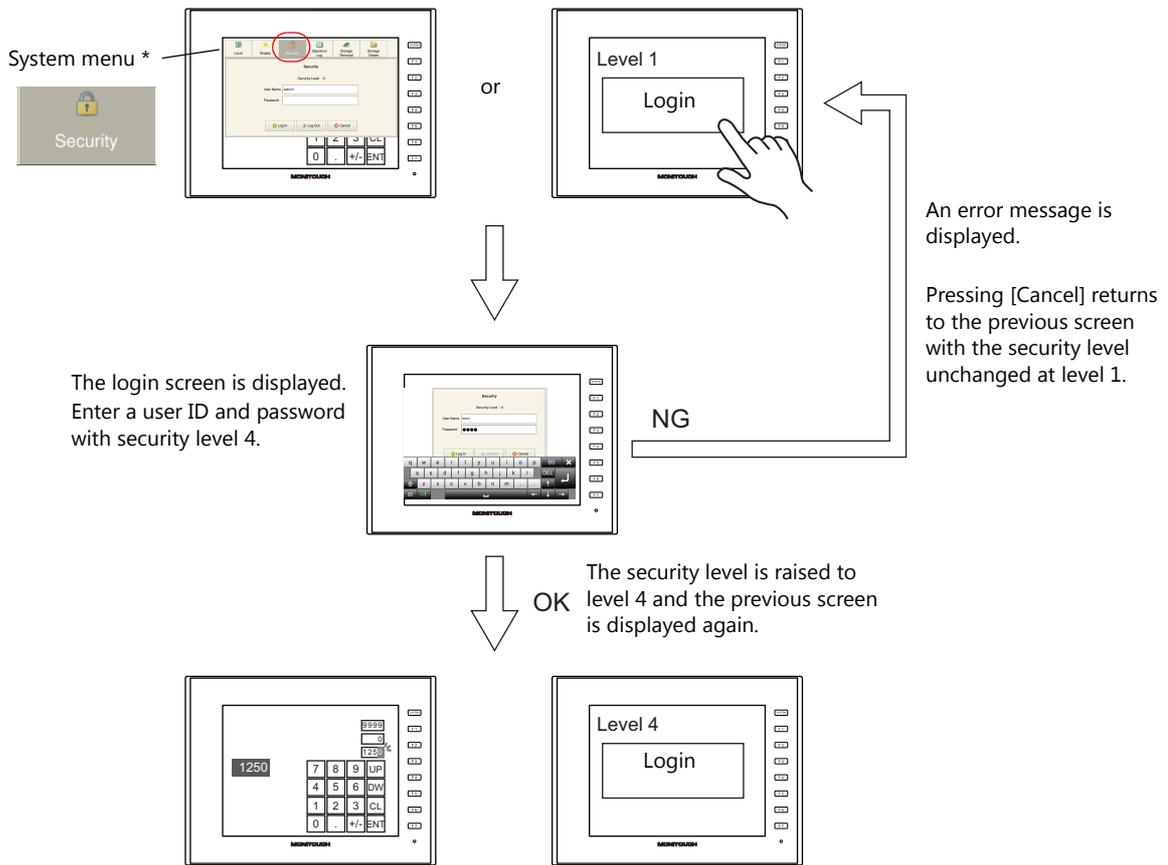
5.4 Login/Logout

The security level can be changed by logging in or out with the screen that is automatically displayed when a screen change occurs as well as from the system menu or a switch.

Login

The security level can be changed using a switch with [Log In] set for [Function] or from the system menu.

Press the [Login] switch.



* The system menu is displayed by pressing the [SYSTEM] function switch.

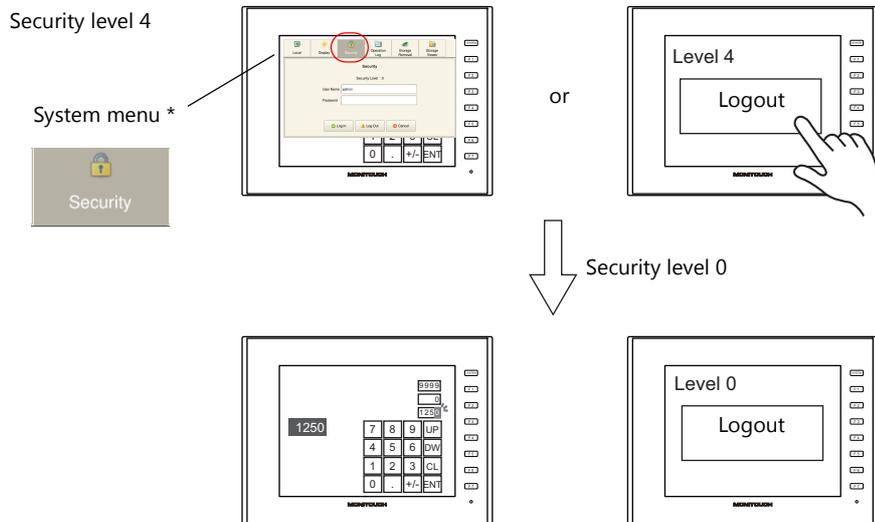


Login is prohibited for users with a security level lower than that of the currently displayed screen. Any login attempt yields the error message "Level does not match."

Logout

The security level is set to zero (0) when a switch with [Log Out] set for [Function] is pressed.

Press the [Login] switch.



When a logout is executed, the security level is set to zero (0).

* The system menu is displayed by pressing the [SYSTEM] function switch.

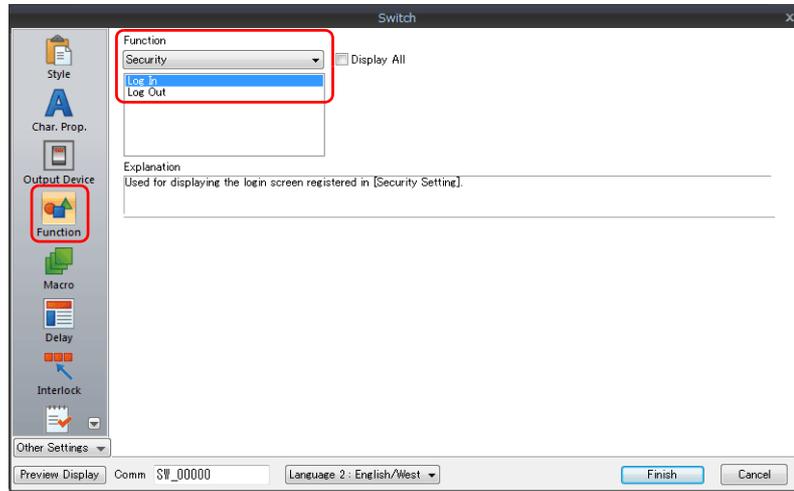


The screen does not change after logging out. When logging out on a low security level screen or using a switch, use in conjunction with the SET_SCRN macro (for screen number change) to change the screen when a user logs out.

Location of Settings

Switch

Configure the following settings at [Parts] → [Switch] → [Function].



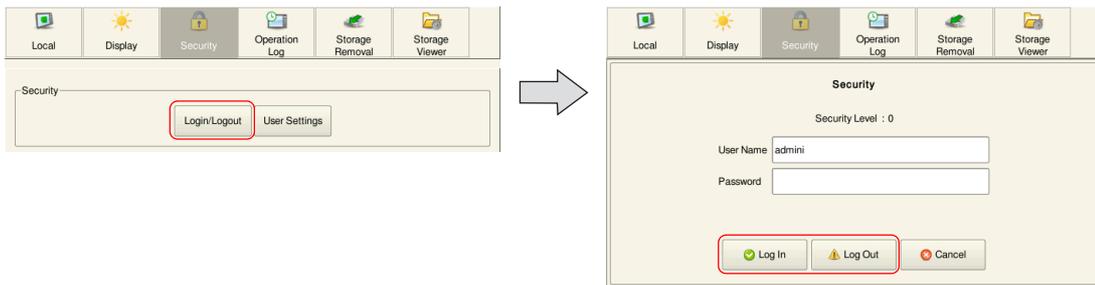
Item	Description
Function	<p>Log In Display the login screen.</p> <p>Log Out Change the security level to zero (0).</p>



The screen does not change after logging out. When logging out on a low security level screen or using a switch, use in conjunction with the SET_SCRN macro (for screen number change) to change the screen when a user logs out.

System Menu

There are no settings in particular.



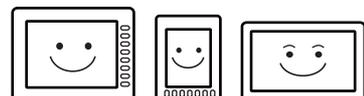
5.5 System Device Memory (\$s)

The following system device memory are associated with the security function.

Device Memory	Description
\$s1360	Stores the user ID of the operator who is currently logged into the system.
\$s1361	
\$s1362	
\$s1363	
\$s1364	

MEMO

MONITOUCH



6 Ethernet Communication Function

- 6.1 Preface
- 6.2 V9 Series Unit IP Address Settings
- 6.3 Screen Program Transfer
- 6.4 PLC Communication
- 6.5 Transferring Data Between V9 Series Units (Macro)
- 6.6 DLL Communication
- 6.7 MES Interface Function
- 6.8 E-mail Notification
- 6.9 FTP server
- 6.10 VNC Server
- 6.11 Data Transfer Service

6.1 Preface

6.1.1 List of Functions

The V9 series features the following Ethernet functions.

An IP address for the V9 series unit must be configured in order to use the Ethernet functions. Refer to [“V9 Series Unit IP Address Settings” page 6-2](#).

Other settings differ depending on the function to be used.

Function		V9				Refer to
		LAN	LAN2	WLAN	CUR-03	
Screen program transfer		○	○	○	○	page 6-7
PLC communication ^{*1}	TCP/IP	○	○	×	×	V9 Series Connection Manual
	UDP/IP	○	○	×	○	
Ladder transfer		○	○	×	○	“12 Ladder Transfer”
Macro ^{*2}	ERead/EWRITE	○	○	○	○	V9 Series Macro Reference Manual
	MES/SEND	○	○	○	○	
DLL communication	HKETn20.dll ^{*3}	○	○	○	○	DLL Function Specifications
	VCFAcs.dll	○	○	○	○	
FTP server		○	○	○	×	page 6-47
E-Mail		○	○	○	×	page 6-41
Network camera		○	○	○	×	“1.3 Network Camera”
VNC server		○	○	○	○	page 6-61
Data transfer service		○	○	○	×	“6.11 Data Transfer Service”
VPN connection		○	○	○	×	Separate document

*1 For details on selecting TCP/IP and UDP/IP for PLC communication, refer to the V9 Series Connection Manual.

*2 The network table settings must be configured in the screen program settings.

*3 When using the SEND command, the network table settings must be configured in the screen program settings.

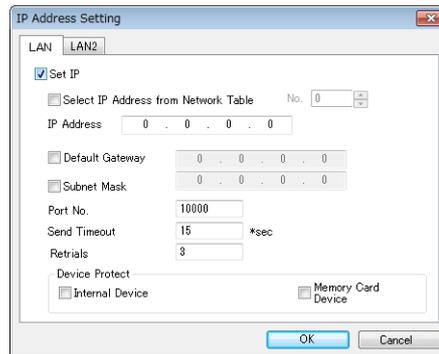
6.2 V9 Series Unit IP Address Settings

An IP address for the V9 series unit must be configured in order to use the Ethernet functions. There are two ways to configure the IP address of the V9 series unit: setting using the V-SFT editor or setting using Local mode on the unit.

6.2.1 Setting Using the V-SFT Editor

Set the IP address in the screen program.

1. Select [System Setting] → [Ethernet Communication] → [Local Port Address]. The [IP Address Setting] window is displayed.
2. Select the [Set IP] checkbox and configure each setting.



Item	Description
Select IP Address from Network Table	This setting is available when the IP address of the V9 series unit has been registered in the network table. Select a network table number from 0 to 99 to set the IP address.
IP Address ^{*1}	Set the IP address for the V9 series unit.
Default Gateway ^{*1}	Set the default gateway.
Subnet Mask ^{*1}	Set the subnet mask. When this checkbox is not selected, the subnet mask is automatically assigned based on the first byte of the IP address. When the IP address is "172.16.200.185", "255.255.0.0" is set. When IP address is "192.168.1.185", "255.255.255.0" is set.
Port No. ^{*1}	Set a port number (1024 to 65535). (except for "8001")
Send Timeout	Specify the timeout duration when sending the "ERead/EWRITE" macro command.
Retrials	0 to 255 Set the number of retries to be performed when a timeout occurs.
Device Protect Internal Device Memory Card Device	Select these checkboxes to write-protect the corresponding device memory from PCs or other stations.

* For details on these settings, refer to [page 6-5](#).

3. Click [OK].
4. Transfer the screen program to the V9 series unit.
5. Check the IP address in Local mode on the unit.

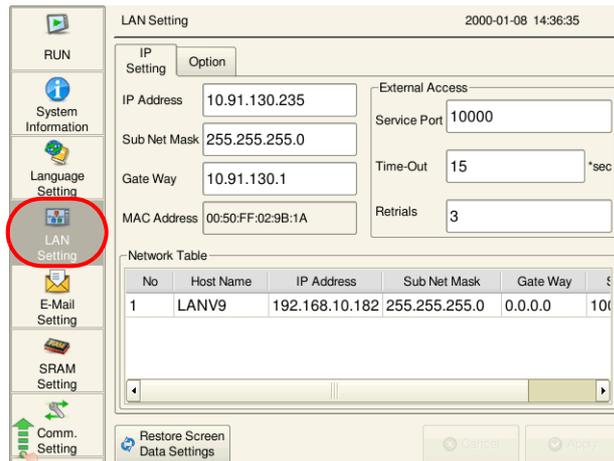
6.2.2 Setting Using Local Mode on the Unit

Set the IP address in Local mode on the V9 series unit.

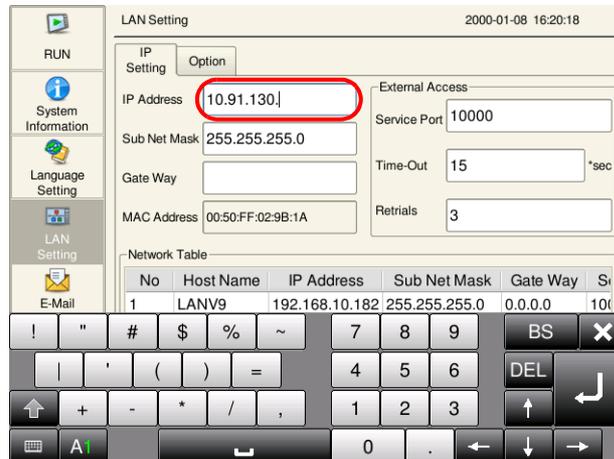
1. Press the [SYSTEM] switch on the unit to display the system menu at the top of the screen.



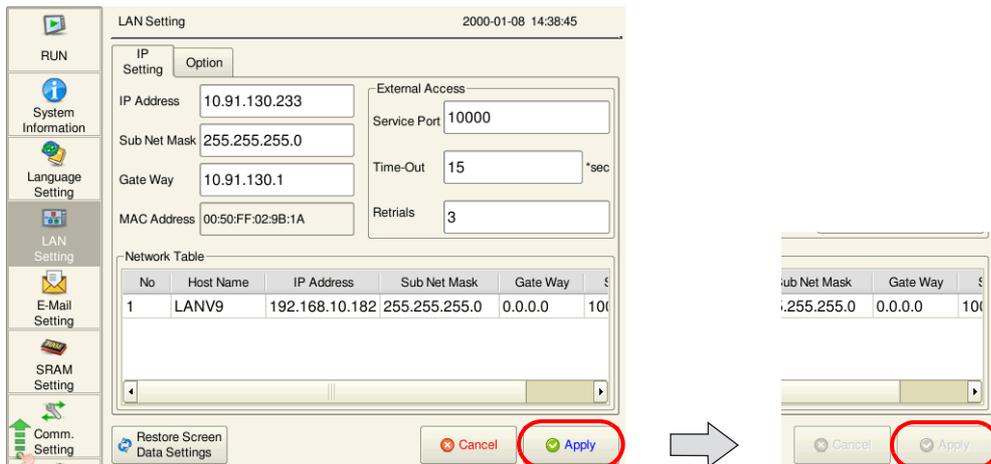
2. Press the [Local] switch on the system menu. The Local mode screen is displayed on the unit.
3. Press the [LAN Setting] switch on the left side of the screen to display the [LAN Setting] screen.



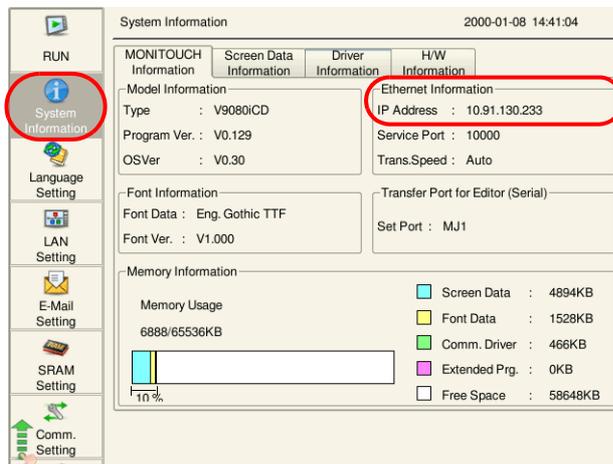
4. Tap an item to change its setting if necessary.



- Press the [Apply] switch at the bottom right of the screen to accept the settings. When the changes are accepted, the [Apply] switch is disabled.

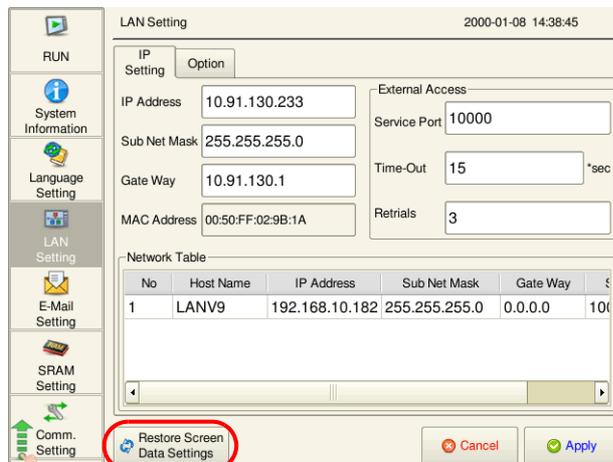


- Check the IP address in Local mode under [System Information] → [Ethernet Information].



Restoring the screen program settings

There is a [Restore Screen Data Settings] switch at the bottom of the [LAN Setting] screen. Press this switch to disable the settings, such as IP address, configured in local mode and restore the settings of the screen program.



6.2.3 Ethernet Terminology

IP Address

This address is used for recognizing each node on the Ethernet network and must be unique.

An IP address is 32-bit data that consists of a network address and a host address, and is classified as A to C depending on the network size.

Class A	0	Network address (7 bits)	Host address (24 bits)
Class B	10	Network address (14 bits)	Host address (16 bits)
Class C	110	Network address (14 bits)	Host address (8 bits)

Notation

Data consisting of 32 bits is divided into four segments in decimal notation and each segment is delimited with a period.

Example: The following class C IP address is represented as "192.128.1.50".

11000000 10000000 00000001 00110010

Unusable IP addresses

- "0" is specified for the first byte, e.g. 0.x.x.x
- "127" is specified for the first byte (which is reserved as the loop back address), e.g. 127.x.x.x
- "224" or more is specified for the first byte (which is reserved for multi-casting or experiments), e.g. 224.x.x.x
- The host address consists of only "0" or "255" (broadcast address), e.g. 128.0.255.255, 192.168.1.0

Port No.

Multiple applications run on each node and communications are carried out for each application between the nodes. Consequently, it is necessary to have a means to identify the application that data should be transferred to. The port number works as this identifier. While the range of port numbers is 0 to 65535, the lower port numbers of 0 to 1024 are generally reserved for other uses. When assigning port numbers, use numbers higher than 1024.

V9 port numbers

The following port numbers are used on the V9 series unit. When changing any port number, select an unused number from the range of 1024 to 65535.

Port No.	Setting Range	Function	Location of Settings
20	Fixed	FTP server	-
21			
80	Fixed	Web server (V8 compatibility function) *2	-
502	Fixed	Modbus slave (TCP/IP)	-
1024 - 1025	1024 - 65534	Ladder transfer via Ethernet *2	[System Setting] → [Hardware Setting] → [PLC Properties] → [Ladder Transfer Port]
1969	1024 - 65535	Network camera (BANNER)	-
5900	Fixed	VNC server	-
8001	Fixed	Screen program transfer *1	Screen program transfer *1
8020	Fixed	Simulator (Ethernet)	-
8050	1024 - 65535	Remote desktop window display *2	[System Setting] → [Other] → [Remote Desktop Table Setting] → [Local Port No.]
10000	1024 - 65535	Ethernet macros EREAD, EWRITE, SEND, MES	Set in the editor "Setting Using the V-SFT Editor" page 6-2
		Ethernet DLL functions HKEtn20.DLL VCFacs.DLL *2	Set on the unit "Setting Using Local Mode on the Unit" page 6-3
10001 - 10008	1024 - 65535	8-way communication	[System Setting] → [Hardware Setting] → [PLC Properties] → [Communication Setting] → [Port No.]
10021 - 10028	1024 - 65535	8-way communication	MITSUBISHI ELECTRIC L series (built-in Ethernet) connections only A port number that is 20 higher than the port number set at [System Setting] → [Hardware Setting] → [PLC Properties] → [Communication Setting] → [Port No.] is secured automatically.
50000 - 50002	1024 - 65535	Network camera (AXIS/Panasonic)	-

Port No.	Setting Range	Function	Location of Settings
64000	1024 - 65535	Multi-link2 (Ethernet), 1:n multi-link2 (Ethernet) *2	[System Setting] → [Hardware Setting] → [PLC Properties] → [Multi-link2 (Ethernet)]

*1 When transferring screen programs over the Internet, specify the router port number in the [Transfer] window of the V-SFT software.

*2 Under development

Default Gateway

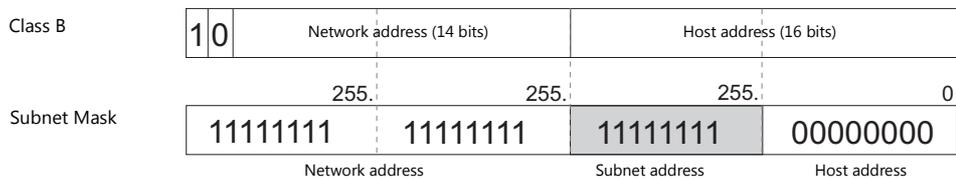
A gateway and a router are used for communication between different networks.

The IP address of the gateway (router) should be set to communicate with the node(s) on other networks.

Subnet Mask

A subnet mask is used for dividing one network address into multiple networks (subnets).

A subnet is assigned by specifying a part of the host address in the IP address as the subnet address.

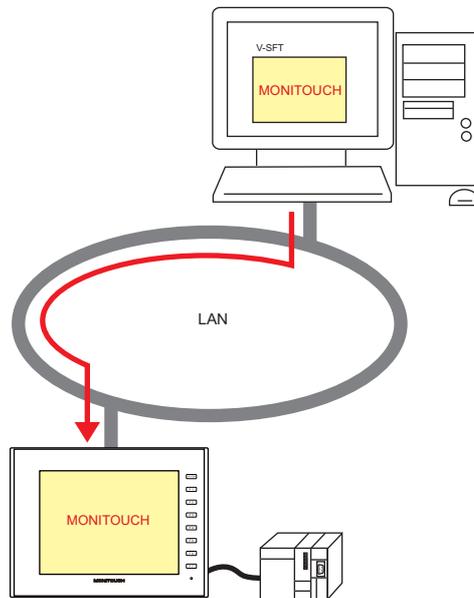


Unusable subnet masks

- When all bits are set to "0", e.g. 0.0.0.0
- When all bits are set to "1", e.g. 255.255.255.255

6.3 Screen Program Transfer

Screen programs can be uploaded and downloaded using Ethernet communication.



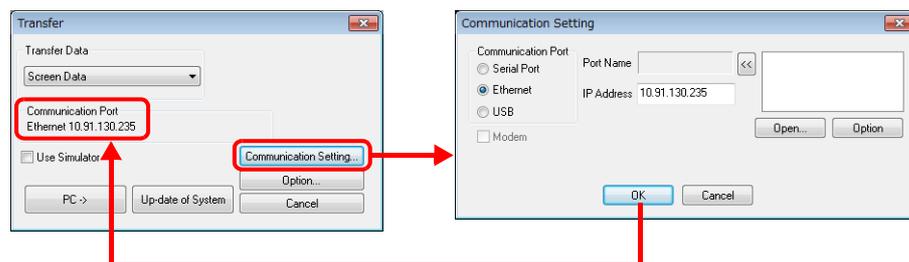
6.3.1 Transfer Procedure

Downloading (PC → V9)

1. Click [Transfer] → [Download]. The [Transfer] menu is displayed.



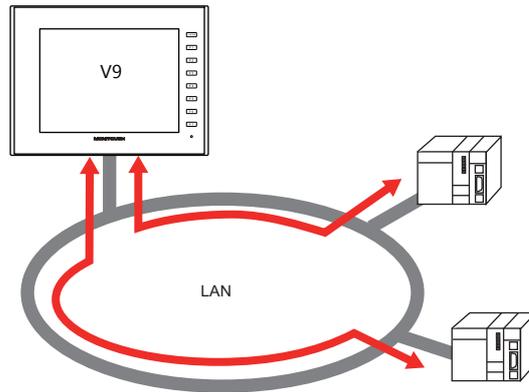
2. Select [Screen Data] for [Transfer Data].
3. Check the [Communication Port] setting.
 - If Ethernet is set and the IP address is correct, proceed to the next step.
 - If [Serial Port] or [USB] is set, click the [Communication Setting] button and select [Ethernet] under [Communication Port].



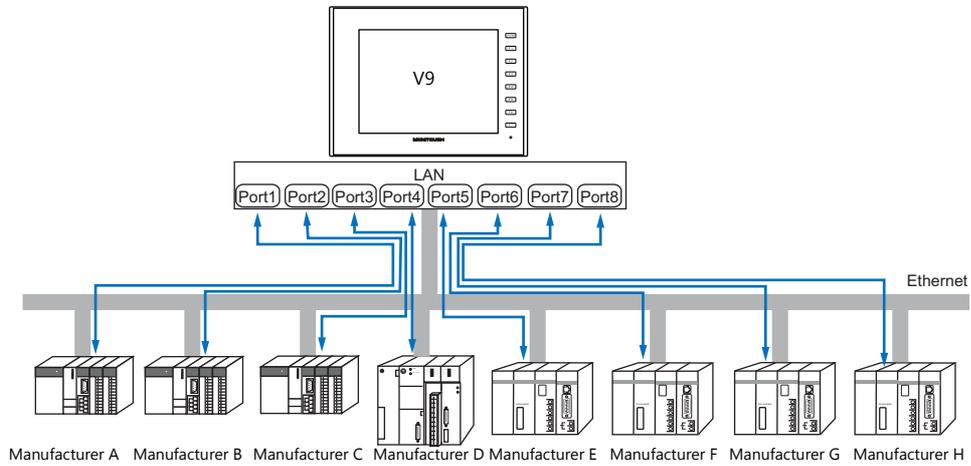
4. Click [PC →] to start the transfer.

6.4 PLC Communication

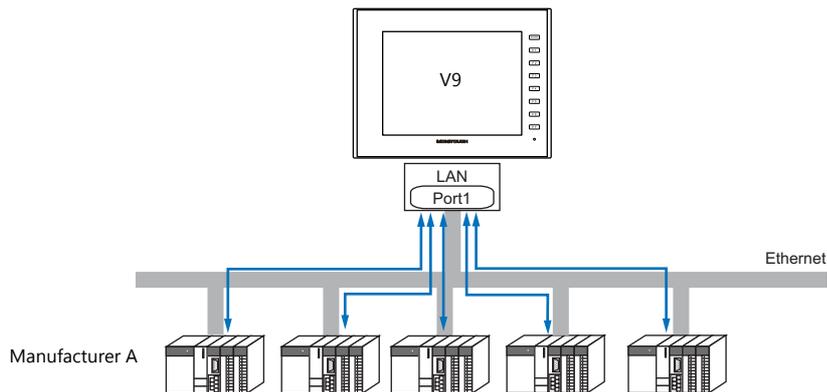
- High-speed communication with the Ethernet port of the PLC can be performed at 100 Mbps^{*2} or 10 Mbps.



- The V9 series unit can open up to eight ports for communication, which means that the unit can simultaneously communicate with up to eight types of PLCs.



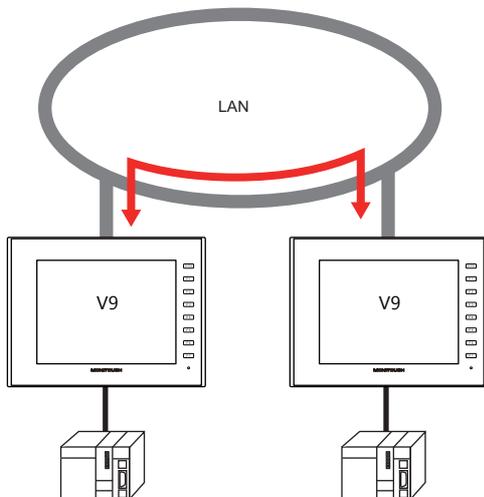
- When multiple PLCs of the same model are connected, a single port on the V9 series unit can be used to perform 1:n communication with these PLCs.



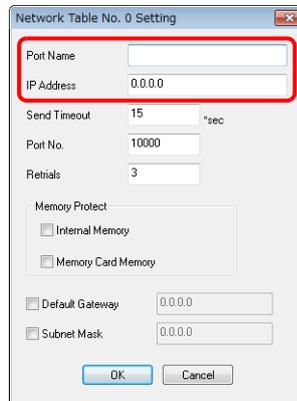
 For details on PLC communication, refer to the V9 Series Connection Manual.

6.5 Transferring Data Between V9 Series Units (Macro)

- Communication can be performed and data shared between V9 series units on the same LAN using the "ERead" and "EWrite" macro commands.



- Network table editing
Register the IP address of the counterpart unit.

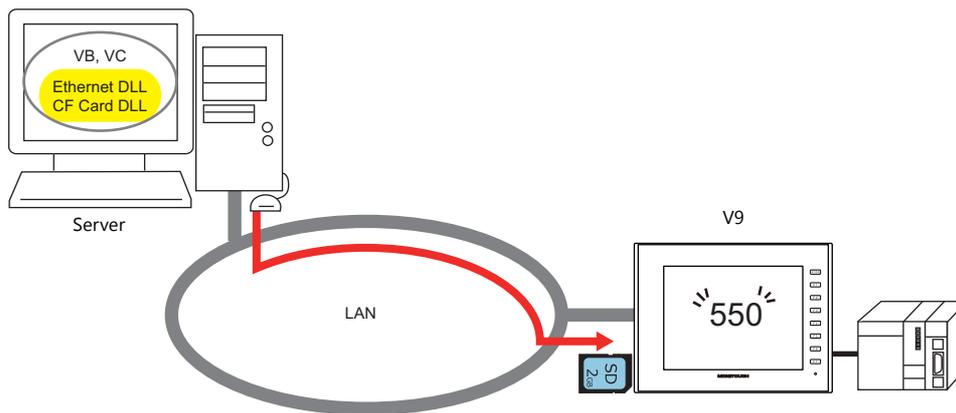


For details on macros, refer to the V9 Series Macro Reference Manual.

- Network table
Register the IP address of the counterpart unit in the [Network Table Edit] window in order to specify the destination using a macro.
Click [System Setting] → [Ethernet Communication] → [Network Table].

6.6 DLL Communication

- Ethernet access functions (that support UDP/IP) for executing device memory read and write operations with respect to V9 series units from a server and CF card access functions for executing read and write file operations on a storage device are provided.
By creating an application on a server using an environment such as Visual C++ 6.0 and Visual Basic, data can be collected from V9 series units and transferred to the server.



For details on DLL functions, refer to the V Series DLL Function Specifications.

6.7 MES Interface Function

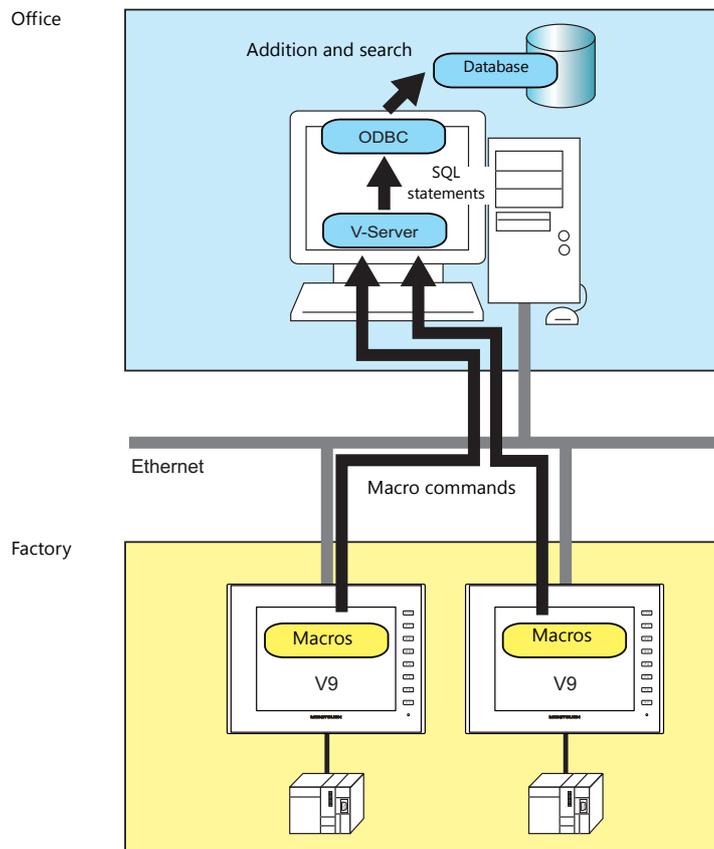
6.7.1 Overview

- The V9 series supports the MES interface function.

MES: Manufacturing Execution System

MES provides information necessary to optimize production activities (such as quality, yield, time of delivery, and cost) throughout processes from order receipt until product completion. Based on real-time information obtained from the manufacturing floor, MES serves as a bridge linking management and production, for the purpose of improving management in manufacturing.

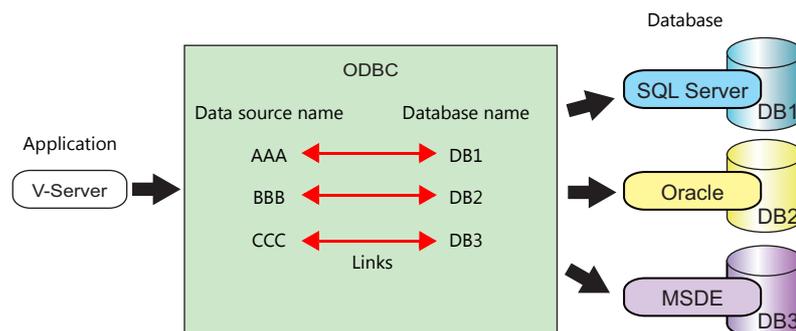
- The MES interface function enables the V9 series to add, search, and delete data on databases. Production control from a PC in the office is made simple by using real-time production information transmitted from the factory to the database.
- The V9 series sends commands to V-Server on the PC connected via Ethernet. V-Server sends the commands as SQL statements to ODBC, and ODBC accesses the database.



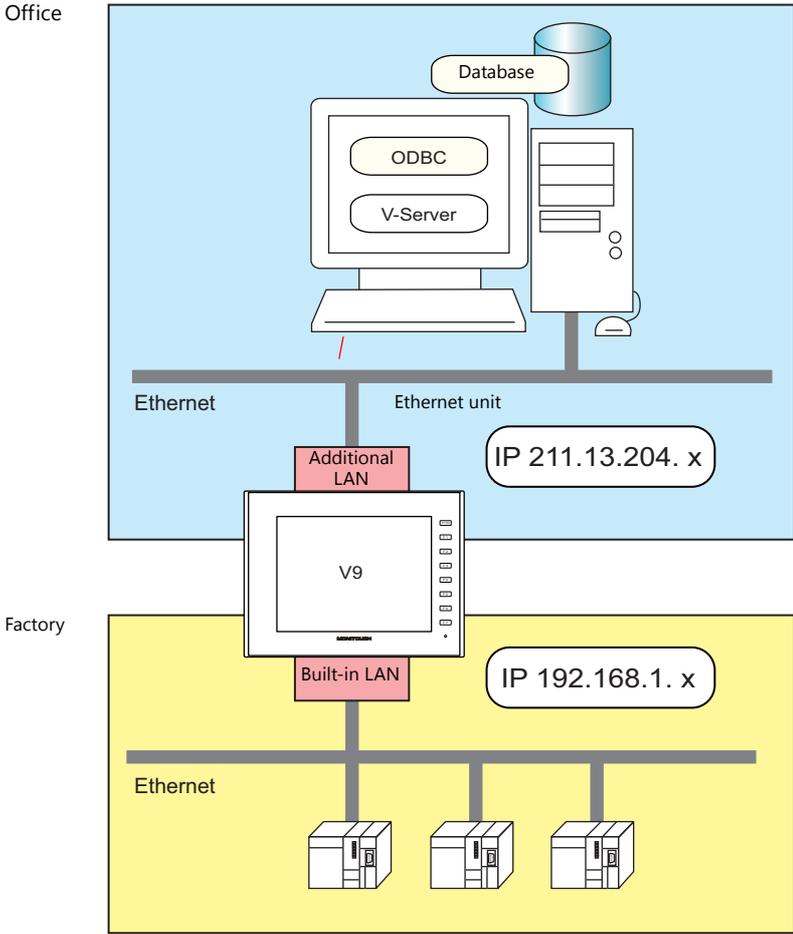
ODBC: Open DataBase Connectivity

ODBC is the interface between an application (V-Server) and the database.

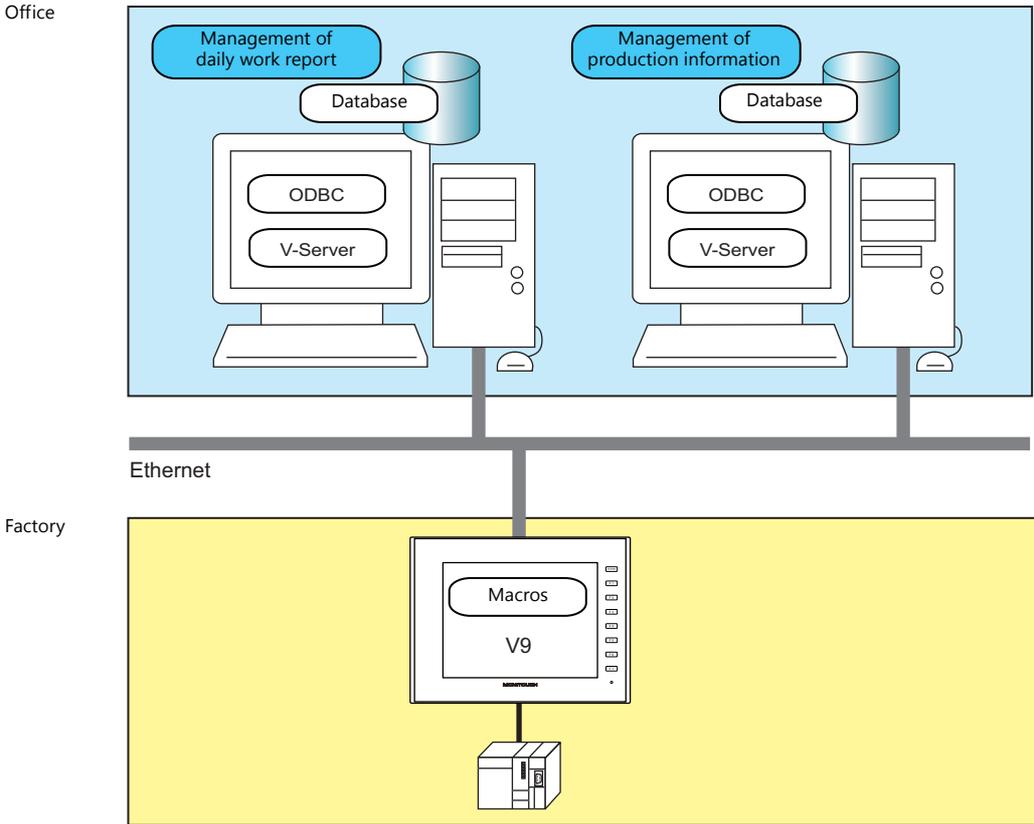
Because ODBC accommodates the differences in specifications between databases, users only need to create programs based on the ODBC-specified procedure in order to access those databases.



- By using LAN2 (additional)/WLAN (wireless)/optional unit (under development), multiple IP addresses can be set for the V9 series so that different networks can be established respectively in the factory and office. System configuration is therefore made simple in the existing facilities.

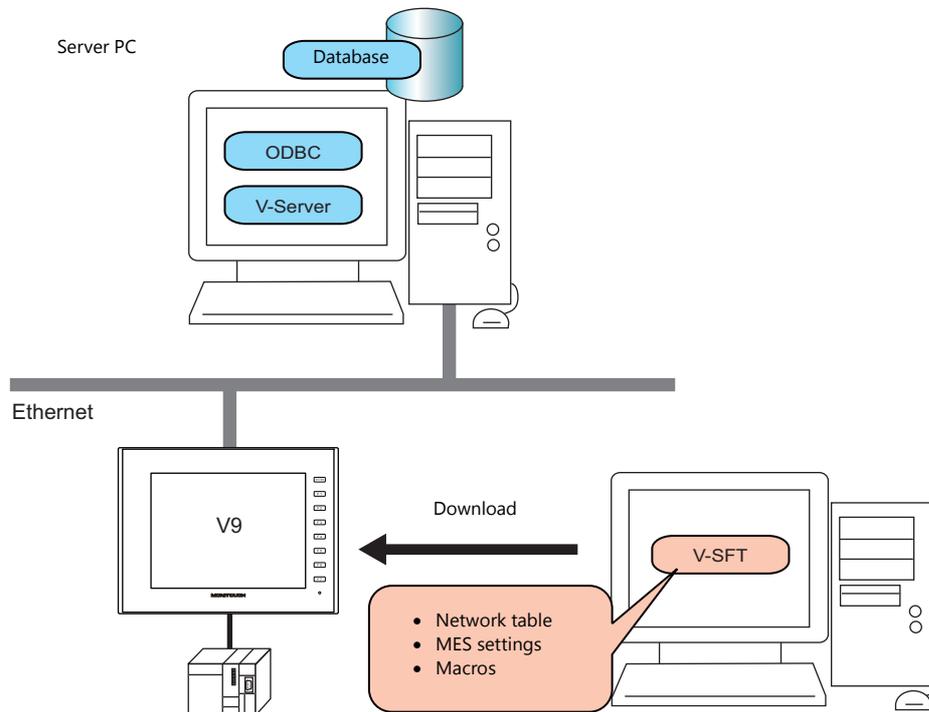


- Separate management through multiple V-Servers is enabled.



6.7.2 System Configuration

System configuration that includes the MES interface function is shown below. This section describes the settings required on the V9 series unit and PC.



Required Settings

V9

Configure the required settings for the V9 series in the screen program.

1. Network table editing ([page 6-13](#))
2. IP address settings for the V9 series unit ([page 6-2](#))
3. MES setting ([page 6-14](#))
4. Macro programming ([page 6-17](#))

Server PC

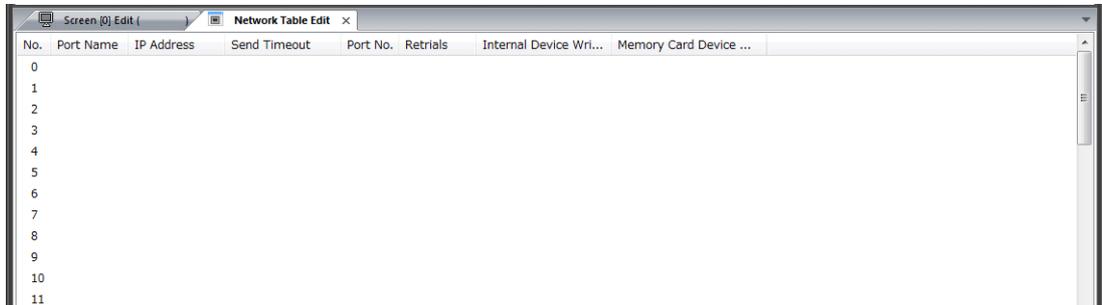
1. V-Server installation ([page 6-23](#))
2. Database installation and table creation ([page 6-24](#))
3. ODBC settings ([page 6-36](#))

6.7.3 V9 Series Unit Settings

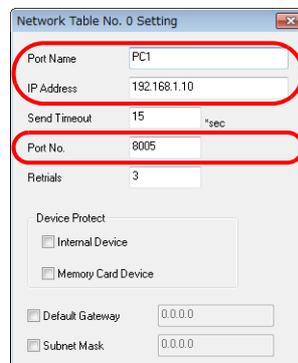
Network Table Editing

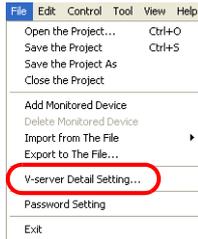
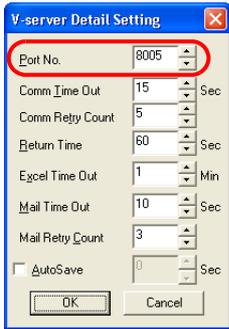
Register the IP address and port number of the PC installed with V-Server in the network table.

1. Click [System Setting] → [Ethernet Communication] → [Network Table]. The [Network Table Edit] window is displayed.



2. Double-click a number in the [No.] column to display the [Network Table Setting] window and configure the following settings.

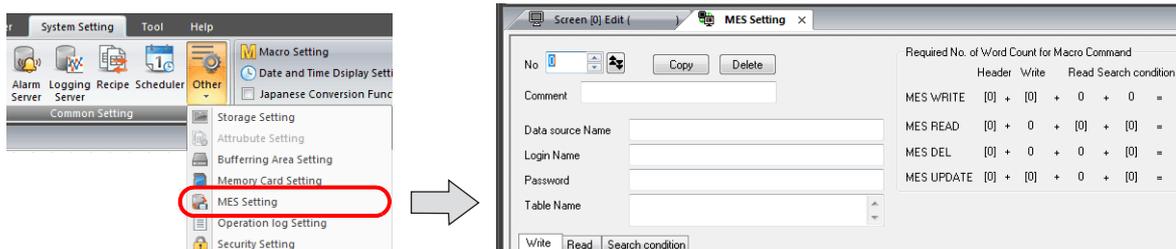


Item	Description
Port Name	Set the name of the PC.
IP Address	Set the IP address of the PC.
Port No.	<p>Specify the port number of V-Server. (Default: 8005) * The port number can be checked in V-Server software via [File] → [V-server Detail Setting] → [Port No.].</p> <div style="display: flex; align-items: center; justify-content: center;">  →  </div>
Send Timeout Retrials Device Protect Default Gateway Subnet Mask	Setting these items is not required when registering the IP address of the PC.

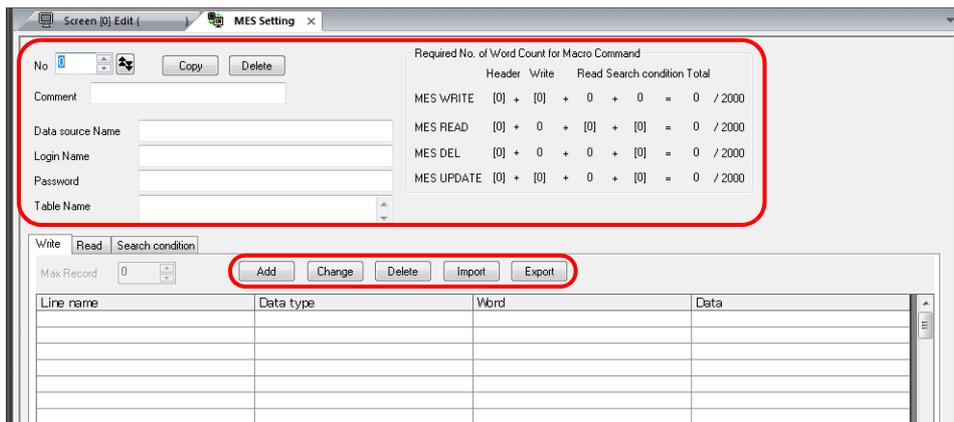
3. Click [OK]. The settings are registered to the network table.
4. If multiple PCs are connected, perform the above registration steps for each PC.

MES Settings

Click [System Setting] → [Other] → [MES Setting]. The [MES Setting] window is displayed.



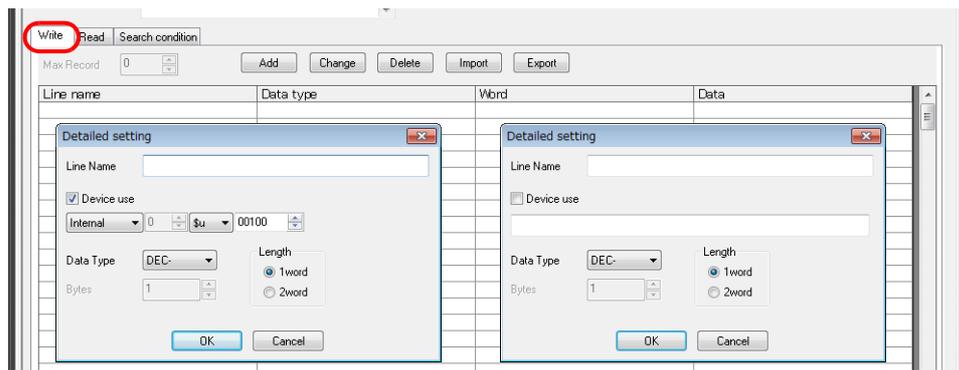
Common settings



Item	Description																																				
No.	Switch between MES setting numbers (0 to 255).																																				
Skip Unregistered No.	Click this button to skip unregistered numbers when switching between MES setting numbers.																																				
Copy	Copy data associated with the current MES settings to the specified destination.																																				
Delete	Delete the current MES settings.																																				
Comment	Enter a comment describing the MES settings. Maximum of 16 one-byte characters (8 two-byte characters.)																																				
Data source Name	Specify the data source name of the database. 32 bytes maximum																																				
Login Name	Specify a login name used for accessing the database. 32 bytes maximum																																				
Password	Specify a password used for accessing the database. 32 bytes maximum																																				
Table Name	Specify the name of the table in the database. 128 bytes maximum																																				
Required No. of Word Count for Macro Command	<p>This area shows the number of words used for each macro command based on the current settings. A number of words more than the maximum of 2,000 is highlighted in red. Adjust the number of registrations, length of line names, and number of words so that 2,000 words are not exceeded.</p> <table border="1" style="margin-left: 20px;"> <thead> <tr> <th colspan="6">Required No. of Word Count for Macro Command</th> </tr> <tr> <th></th> <th>Header</th> <th>Write</th> <th>Read</th> <th>Search condition</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>MES WRITE</td> <td>[0]</td> <td>[0]</td> <td>+ 0</td> <td>+ 0</td> <td>= 0 / 2000</td> </tr> <tr> <td>MES READ</td> <td>[0]</td> <td>+ 0</td> <td>+ [0]</td> <td>+ [0]</td> <td>= 0 / 2000</td> </tr> <tr> <td>MES DEL</td> <td>[0]</td> <td>+ 0</td> <td>+ 0</td> <td>+ [0]</td> <td>= 0 / 2000</td> </tr> <tr> <td>MES UPDATE</td> <td>[0]</td> <td>+ [0]</td> <td>+ 0</td> <td>+ [0]</td> <td>= 0 / 2000</td> </tr> </tbody> </table> <p style="margin-left: 20px;"> Macro commands Words in total for each macro command Number of words used for Write, Read and Search condition With []: Valid Without []: Invalid (always "0") </p>	Required No. of Word Count for Macro Command							Header	Write	Read	Search condition	Total	MES WRITE	[0]	[0]	+ 0	+ 0	= 0 / 2000	MES READ	[0]	+ 0	+ [0]	+ [0]	= 0 / 2000	MES DEL	[0]	+ 0	+ 0	+ [0]	= 0 / 2000	MES UPDATE	[0]	+ [0]	+ 0	+ [0]	= 0 / 2000
Required No. of Word Count for Macro Command																																					
	Header	Write	Read	Search condition	Total																																
MES WRITE	[0]	[0]	+ 0	+ 0	= 0 / 2000																																
MES READ	[0]	+ 0	+ [0]	+ [0]	= 0 / 2000																																
MES DEL	[0]	+ 0	+ 0	+ [0]	= 0 / 2000																																
MES UPDATE	[0]	+ [0]	+ 0	+ [0]	= 0 / 2000																																
Write Read Search condition	Add	Display the [Detailed setting] window. Enter a line name as targeted for writing and the data type in this window. 256 maximum																																			
	Change	Display the [Detailed setting] window. Change the registered settings.																																			
	Delete	Delete the registered settings.																																			
	Import	Import a CSV file into the current MES settings.																																			
	Export	Export the current MES settings into an CSV file.																																			

[Write] tab window

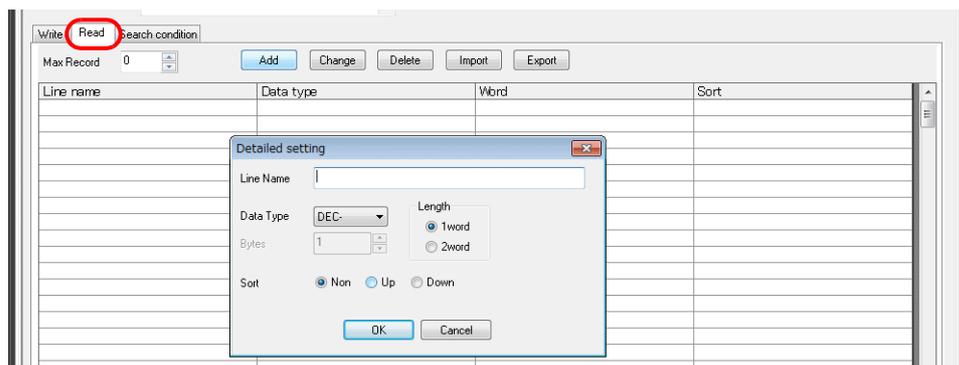
The [Write] tab window is used for adding data to the database.



Item	Description															
Line Name	Specify the name of the line to which you will add data. 128 bytes maximum * The line name must not begin with a one-byte numeral. * The following characters cannot be used: ~ - ! , { % } ^ ' & . (/) ` space															
Device use	Specify the data for writing. 256 bytes maximum <ul style="list-style-type: none"> With device memory specification: Set the device memory address to store the data for writing. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Device Memory</th> <th>Input Type</th> <th>Text Processing</th> </tr> </thead> <tbody> <tr> <td>PLC1 - PLC8</td> <td colspan="2">Depends on the input type of each PLC.</td> </tr> <tr> <td>Internal</td> <td>DEC</td> <td>LSB → MSB</td> </tr> </tbody> </table> Without device memory specification: Set a constant or fixed string of text. 	Device Memory	Input Type	Text Processing	PLC1 - PLC8	Depends on the input type of each PLC.		Internal	DEC	LSB → MSB						
Device Memory	Input Type	Text Processing														
PLC1 - PLC8	Depends on the input type of each PLC.															
Internal	DEC	LSB → MSB														
Data Type Length Bytes	Set the data type of the data for writing, data length, and number of bytes. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Data type</th> <th>Length</th> <th>Bytes</th> </tr> </thead> <tbody> <tr> <td>DEC-</td> <td>1 words/2 words</td> <td>-</td> </tr> <tr> <td>CHAR</td> <td>128 word</td> <td>256 bytes maximum</td> </tr> <tr> <td>BCD</td> <td>1 words/2 words</td> <td>-</td> </tr> <tr> <td>FLOAT</td> <td>2 word</td> <td>-</td> </tr> </tbody> </table>	Data type	Length	Bytes	DEC-	1 words/2 words	-	CHAR	128 word	256 bytes maximum	BCD	1 words/2 words	-	FLOAT	2 word	-
Data type	Length	Bytes														
DEC-	1 words/2 words	-														
CHAR	128 word	256 bytes maximum														
BCD	1 words/2 words	-														
FLOAT	2 word	-														

[Read] tab window

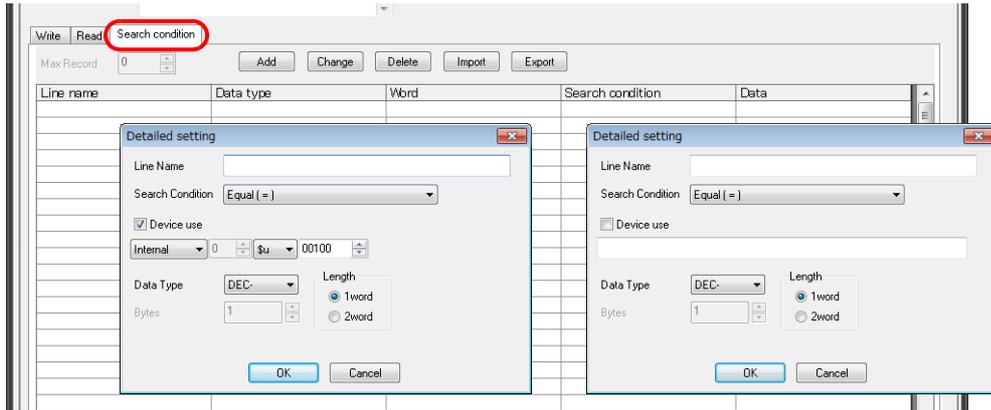
Configure settings for searching the database.



Item	Description															
Max Record	Specify the maximum number of records to display in the search results. 65536 maximum															
Line Name	Specify the line name targeted in searching. 128 bytes maximum * The line name must not begin with a one-byte numeral. * The following characters cannot be used: ~ - ! , { % } ^ ' & . (/) ` space															
Data Type Length Bytes	Specify the data type, data length, and number of bytes of the data targeted in searching. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Data type</th> <th>Length</th> <th>Bytes</th> </tr> </thead> <tbody> <tr> <td>DEC-</td> <td>1 words/2 words</td> <td>-</td> </tr> <tr> <td>CHAR</td> <td>128 word</td> <td>256 bytes maximum</td> </tr> <tr> <td>BCD</td> <td>1 words/2 words</td> <td>-</td> </tr> <tr> <td>FLOAT</td> <td>2 word</td> <td>-</td> </tr> </tbody> </table>	Data type	Length	Bytes	DEC-	1 words/2 words	-	CHAR	128 word	256 bytes maximum	BCD	1 words/2 words	-	FLOAT	2 word	-
Data type	Length	Bytes														
DEC-	1 words/2 words	-														
CHAR	128 word	256 bytes maximum														
BCD	1 words/2 words	-														
FLOAT	2 word	-														
Sort	Set an option for sorting the search results. Non / Up / Down															

[Search condition] tab window

Configure settings for searching the database. This tab is also used to delete data from the database.



Item	Description																		
Line Name	Specify the line name targeted in searching. 128 bytes maximum * The line name must not begin with a one-byte numeral. * The following characters cannot be used: ~ - ! , { % } ^ ' & . (/) ` space																		
Search Condition	Set the search conditions. When searching based on multiple conditions, use AND. <table border="1" style="width: 100%; margin-top: 10px;"> <thead> <tr> <th>Search condition</th> <th>Remarks</th> </tr> </thead> <tbody> <tr> <td>Equal (=)</td> <td></td> </tr> <tr> <td>Not equal (!=)</td> <td></td> </tr> <tr> <td>Big (> value)</td> <td></td> </tr> <tr> <td>Small (< value)</td> <td></td> </tr> <tr> <td>Upper (>= value)</td> <td></td> </tr> <tr> <td>Under (<= value)</td> <td></td> </tr> <tr> <td>Include character string</td> <td>Wildcard (%) usable Example: AA%: Text beginning with AA to be searched</td> </tr> <tr> <td>Update</td> <td>Extract records that do not match the data for searching from the specified line name. These records are then replaced as the data for searching.</td> </tr> </tbody> </table>	Search condition	Remarks	Equal (=)		Not equal (!=)		Big (> value)		Small (< value)		Upper (>= value)		Under (<= value)		Include character string	Wildcard (%) usable Example: AA%: Text beginning with AA to be searched	Update	Extract records that do not match the data for searching from the specified line name. These records are then replaced as the data for searching.
Search condition	Remarks																		
Equal (=)																			
Not equal (!=)																			
Big (> value)																			
Small (< value)																			
Upper (>= value)																			
Under (<= value)																			
Include character string	Wildcard (%) usable Example: AA%: Text beginning with AA to be searched																		
Update	Extract records that do not match the data for searching from the specified line name. These records are then replaced as the data for searching.																		
Device use	Specify the data targeted for searching. 256 bytes maximum <ul style="list-style-type: none"> With device memory specification: Set the device memory address to store the data for searching. <table border="1" style="width: 100%; margin-top: 10px;"> <thead> <tr> <th>Device Memory</th> <th>Input Type</th> <th>Text Processing</th> </tr> </thead> <tbody> <tr> <td>PLC1 - PLC8</td> <td colspan="2">Depends on the input type of each PLC.</td> </tr> <tr> <td>Internal</td> <td>DEC</td> <td>LSB → MSB</td> </tr> </tbody> </table> Without device memory specification: Set a constant or fixed string of text. 	Device Memory	Input Type	Text Processing	PLC1 - PLC8	Depends on the input type of each PLC.		Internal	DEC	LSB → MSB									
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Data type	Length	Bytes																	
DEC-	1 words/2 words	-																	
CHAR	128 word	256 bytes maximum																	
BCD	1 words/2 words	-																	
FLOAT	2 word	-																	

Macros

The MES interface function uses the following five types of macros.

MES macro command list

Category	Command Name	Mnemonic	Description	Refer to
MES	MES	MES CHECK (F1, F2, F3)	V-server start check	page 6-17
		MES WRITE (F1, F2, F3)	Adding data to the database	page 6-18
		MES READ (F1, F2, F3)	Searching the database	page 6-19
		MES DEL (F1, F2, F3)	Deleting data from the database	page 6-20
		MES UPDATE (F1, F2, F3)	Updating the database	page 6-21

MES CHECK (F1, F2, F3)

Function: V-server start check

This macro is used to check whether V-Server at the location specified in table No. [F2] is running. The returned value specified in [F3] is stored in the memory at the return address of [F1].

Device Memory Used

	Internal	PLC1 - 8	Constant
F1	⊙		
F2	○		○
F3	○		○

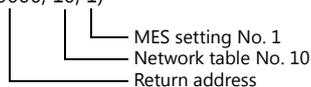
○ : Setting enabled (indirect designation disabled) ⊙ : Setting enabled (indirect designation enabled)

Range

	Value
F0	MES CHECK
F1	Return address
F2	0 to 255: Network table number
F3	0 to 65535 (-32768 to 32767): Return value

Operation Example

MES CHECK (\$u0000, 10, 1)



The above macro checks whether V-Server is running on the PC registered to network table number 10. If V-Server is running, a return value of "1" is stored at the return address of \$u0000.

Supplementary information

- Execute the macro after setting a value other than the returned value at the return address.
- The execution type of the macro can be set using \$s514. For details, refer to [page 6-22](#).
When a macro command is executed, if "1" (other than "0") is set for \$s514 while V-Server is not running, no response is given from V-Server and the V9 series unit will enter the standby state. It is recommended to execute this command when "0" is set for \$s514.
- The result of the macro execution is stored in the device memory address \$s515. For details, refer to [page 6-22](#).
- The returned value will not be placed at the [F1] return address immediately. Monitor the [F1] return address using an event timer macro, etc.
- If an error occurs when writing the result (return value, data retrieved by a search) of accessing database, the result and log data is not output to the V9 series unit.

MES WRITE (F1, F2, F3)

Function: Adding data to the database

This macro is used to add the data set on the [Write] tab window under MES setting No. [F3] to the database. The data is added using V-Server at the location specified in table No. [F2]. The result is stored at the [F1] return address.

Device Memory Used

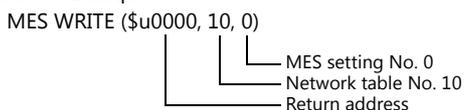
	Internal	PLC1 - 8	Constant
F1	⊙		
F2	○		○
F3	○		○

○: Setting enabled (indirect designation disabled) ⊙: Setting enabled (indirect designation enabled)

Range

	Value	
F0	MES WRITE	
F1	Return address	Return value 0: Normal termination -1: Ended in error
F2	0 to 255: Network table number	
F3	0 to 255: MES setting No.	

Operation Example



The above macro adds data to the database of the PC specified in network table No. 10. The data to be added depends on the settings made for MES setting No. 0. When the data update is completed normally, a return value of "0" is stored at the return address of \$u0000.

Supplementary information

- The execution type of the macro can be set using \$s514. For details, refer to [page 6-22](#).
- The result of the macro execution is stored in the device memory address \$s515.
-40: The [Write] tab window setting is not made in the specified MES setting number, or any setting error is found. For details on other error numbers, refer to [page 6-22](#).
- The returned value will not be placed at the [F1] return address immediately. Monitor the [F1] return address using an event timer macro, etc.
- The primary key for V-Server must be set to the database table. ([page 6-33](#))
- If an error occurs when writing the result (return value, data retrieved by a search) of accessing database, the result and log data is not output to the V9 series unit.

MES READ (F1, F2, F3)

Function: Searching the database

This macro is used to search the line set on the [Read] tab window for MES setting No. [F3]. The search is performed based on the specified search conditions via V-Server at the location specified in table No. [F2]. The result is stored at the [F1] return address.

Device Memory Used

	Internal	PLC1 - 8	Constant
F1	⊙		
F2	○		○
F3	○		○

○: Setting enabled (indirect designation disabled) ⊙: Setting enabled (indirect designation enabled)

Range

	Value
F0	MES READ
F1	Return address
F2	0 to 255: Network table number
F3	0 to 255: MES setting No.

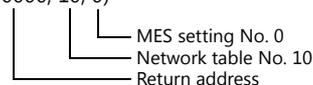
Return address

The following data is stored at the addresses starting from the [F1] return address.

Return address	Value
n	Execution result Normally finished: 0 Error: Other than 0
n+1	Number of retrieved records The number of records that match the search conditions is stored. If no records are found, 0 is stored. The maximum number of records is set on the [Read] tab window in the MES settings.
n+2 -	Obtained data 1 The retrieved data is stored in the format specified on the [Read] tab window in the MES settings.
:	Obtained data 2
:	Obtained data 3
:	:
:	Obtained data m (maximum number of records)

Operation Example

MES READ (\$u0000, 10, 0)



The above macro searches the database on the PC specified in network table No. 10.

The search is performed according to the settings on the [Read] and [Search condition] tab windows for MES setting No. 0. When the search is completed normally, a return value of "0" and the obtained data are stored at the addresses starting from the return address of \$u0000.

Supplementary information

- The execution type of the macro can be set using \$s514. For details, refer to [page 6-22](#).
- The result of the macro execution is stored in the device memory address \$s515.
-40: The [Read] tab window setting is not made in the specified MES setting number, or any setting error is found.
For details on other error numbers, refer to [page 6-22](#).
- The returned value will not be placed at the [F1] return address immediately. Monitor the [F1] return address using an event timer macro, etc.
- If settings are not configured on the [Search condition] tab window for the specified MES setting number, all records are extracted as the results of the search.
- If an error occurs when writing the result (return value, data retrieved by a search) of accessing database, the result and log data is not output to the V9 series unit.

MES DEL (F1, F2, F3)

Function: Deleting records from the database

This macro is used to search the database according to the settings on the [Search condition] tab window for MES setting No. [F3]. The search is performed via V-Server at the location specified in table No. [F2]. The records that match the conditions are deleted. The result is stored at the [F1] return address.

Device Memory Used

	Internal	PLC1 - 8	Constant
F1	⊙		
F2	○		○
F3	○		○

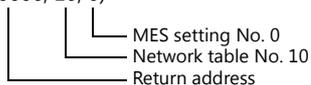
○: Setting enabled (indirect designation disabled) ⊙: Setting enabled (indirect designation enabled)

Range

	Value	
F0	MES DEL	
F1	Return address	Return value 0: Normal termination -1: Ended in error
F2	0 to 255: Network table number	
F3	0 to 255: MES setting No.	

Operation Example

MES DEL (\$u0000, 10, 0)



The above macro searches the database of the PC specified in network table No. 10 and deletes the retrieved data. The search is performed according to the settings on the [Search condition] tab window for MES setting No. 0.

When the data deletion is completed normally, a return value of "0" is stored at the return address of \$u0000.

Supplementary information

- The execution type of the macro can be set using \$s514. For details, refer to [page 6-22](#).
- The result of the macro execution is stored in the device memory address \$s515.
-40: The [Search condition] tab window setting is not made in the specified MES setting number, or any setting error is found.
- For details on other error numbers, refer to [page 6-22](#).
- If an error occurs when writing the result (return value, data retrieved by a search) of accessing database, the result and log data is not output to the V9 series unit.

MES UPDATE (F1, F2, F3)

Function: Updating the database

This macro is used to search the line set on the [Write] tab window for MES setting No. [F3]. The search is performed based on the specified search conditions via V-Server at the location specified in table No. [F2], and then the database is updated. The result is stored at the [F1] return address.

Device Memory Used

	Internal	PLC1 - 8	Constant
F1	⊙		
F2	○		○
F3	○		○

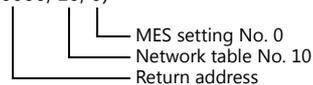
○: Setting enabled (indirect designation disabled) ⊙: Setting enabled (indirect designation enabled)

Range

	Value	
F0	MES UPDATE	
F1	Return address	Return value 0: Normal termination -1: Ended in error
F2	0 to 255: Network table number	
F3	0 to 255: MES setting No.	

Operation Example

MES UPDATE (\$u0000, 10, 0)



The above macro searches the database on the PC specified in network table No. 10 and updates the database. The search is performed according to the settings on the [Write] and [Search condition] tab windows for MES setting No. 0. When the data update is completed normally, a return value of "0" is stored at the return address of \$u0000.

Supplementary information

- The execution type of the macro can be set using \$s514. For details, refer to [page 6-22](#).
- The result of the macro execution is stored in the device memory address \$s515.
-40: Settings are not configured on the [Write] or [Search condition] tab window for the specified MES setting number, or any setting error is found.
For details on other error numbers, refer to [page 6-22](#).
- The returned value will not be placed at the [F1] return address immediately. Monitor the [F1] return address using an event timer macro, etc.
- This macro command cannot be executed when "Update" is set on the [Search condition] tab window.
- If an error occurs when writing the result (return value, data retrieved by a search) of accessing database, the result and log data is not output to the V9 series unit.

System Device Memory (\$s)

The system device memory related to MES macros are shown below.

Addresses	Description	Remarks																																
\$s512	Selection from two Ethernet ports 0: LAN 2: LAN2	→ V																																
\$s514	Macro Wait request <div style="display: flex; justify-content: space-between; align-items: center;"> MSB LSB </div> <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>09</td><td>08</td><td>07</td><td>06</td><td>05</td><td>04</td><td>03</td><td>02</td><td>01</td><td>00</td> </tr> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td></td><td></td> </tr> </table> <div style="margin-top: 10px;"> <div style="display: flex; justify-content: space-between;"> <div style="text-align: center;"> <p>System reserved (setting 0)</p> </div> <div style="text-align: center;"> <p>Wait request 0: No 1: Yes</p> </div> </div> </div>	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	0	0	0	0	0	0	0	0	0	0	0	0	0	0			→ V
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																			
0	0	0	0	0	0	0	0	0	0	0	0	0	0																					
\$s515	Macro Wait request execution result	V →																																

\$s514, 515

Device memory related to MES macros and Ethernet macros (SEND/ERead/EWRITE).

Executed with respect to the port specified with \$s512.

- \$s514: Set whether a macro wait request is on or off.
 - [0]: No wait
During the execution of a macro command, the execution of the next macro command takes place before the completion of the current one.
 - Other than [0]: With wait
During the execution of a macro command, the next macro command is put on hold and is executed after the completion of the current command.
- * In the case of successive accesses to the same port on one single macro sheet, specify a value other than "0" (with wait). If "0" (no wait) is specified, a macro command issued afterward will not be accepted.
- \$s515: Store the macro execution result.
When \$s514 is set to "0", the issue of a macro command is stored. When \$s514 is set to "1", the response returned for the command is stored.

Code	Description	Solution
0	Normal	-
200 - 2000	Communication error	Refer to the V9 Series Troubleshooting/Maintenance Manual.
-30	Timeout	Check whether an error has occurred on the destination V9 series unit.
-31	Number of words for sending exceeded	Use the macro editor to check the number of words for sending.
-32	The specified table is not used.	Check the network table settings.
-33	The send command cannot be used.	Use the macro editor to check the macro command.
-34	The specified table is in use.	Check whether system device memory address \$s514 is set. If it is not to be set, reduce the number of communications.
-35	Processing impossible due to insufficient memory	Check the memory availability of the counterpart device.
-40	Setting data error	Check that [Write], [Read], and [Search condition] settings are configured for the specified MES setting number. Check that the set data is correct.

6.7.4 V-Server

V-Server

Hakko Electronics V-Server is the software that enables accesses to databases.

Once V-Server is installed on a PC, no additional configuration is needed. The system requirements for V-Server are listed in the table below.

System requirements

Item	Description
PC	Pentium III 800 MHz equivalent or higher
OS	Windows 98/Me/NT Ver.4.0/2000/XP/XP64 Edition/Vista (32bit, 64bit)/7 (32bit, 64bit)/8 (32bit, 64bit)/Server 2008 R2/Server 2012
Memory	Min. 128 MB
Hard disk	Min. 320 MB of free disk space
Database	SQL Server (Microsoft) MSDE (Microsoft) Oracle (Oracle Corporation)

Installation

1. Download the V-Server software to your PC from the Hakko Electronics website at the following URL.
<http://monitouch.fujielectric.com/site/support-e/download-index-01.html>
2. Install V-Server on the PC.
3. Start V-Server.

- * The message that appears at start-up indicates that V-Server is usable for one hour.
To use V-Server without this limitation, please apply for a software license and obtain a password. For details, refer to the TELLUS and V-Server Manual.



6.7.5 Database

Types of Databases

The following databases can be used.

- SQL Server: Microsoft
- MSDE: Microsoft
- Oracle: Oracle Corporation

This manual describes an example of configuration using Microsoft SQL Server 2012 Express Edition.

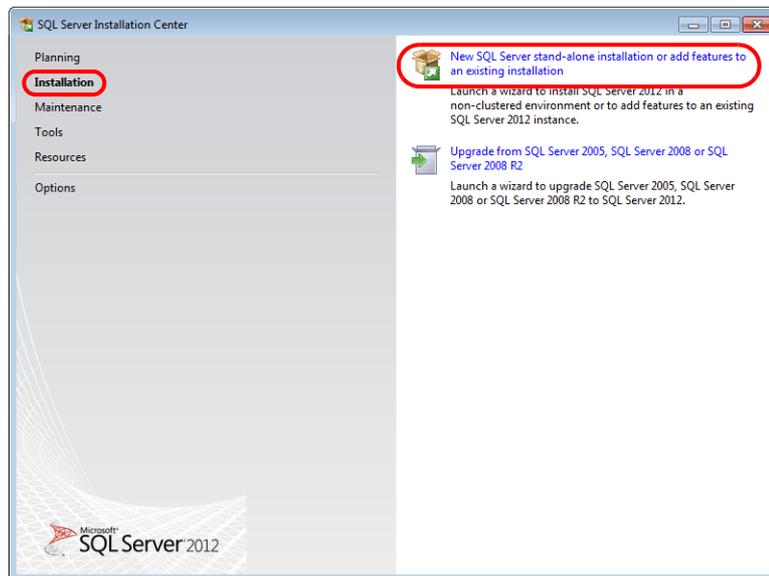
SQL Server 2012 Express Edition

This is a simplified version of SQL Server 2012. This software can be downloaded free of charge from Microsoft's website.

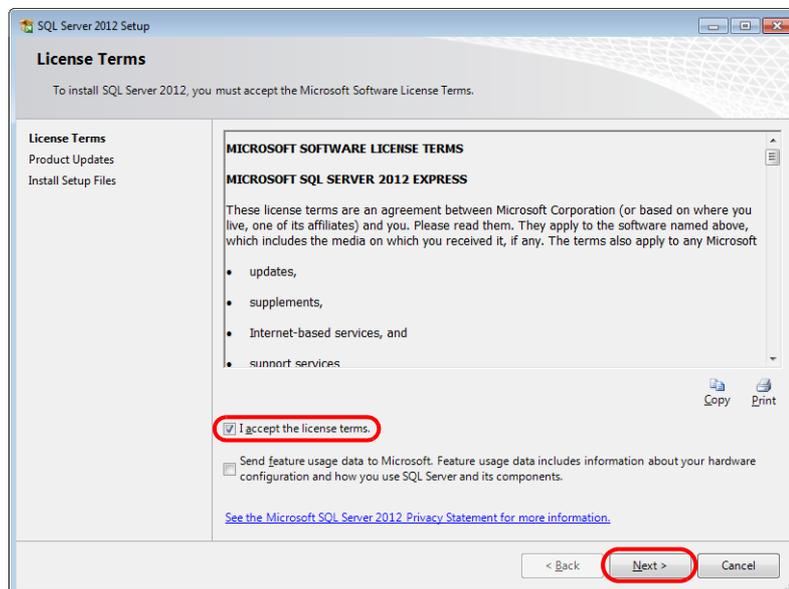
SQL Server 2012 Express Edition

Installation

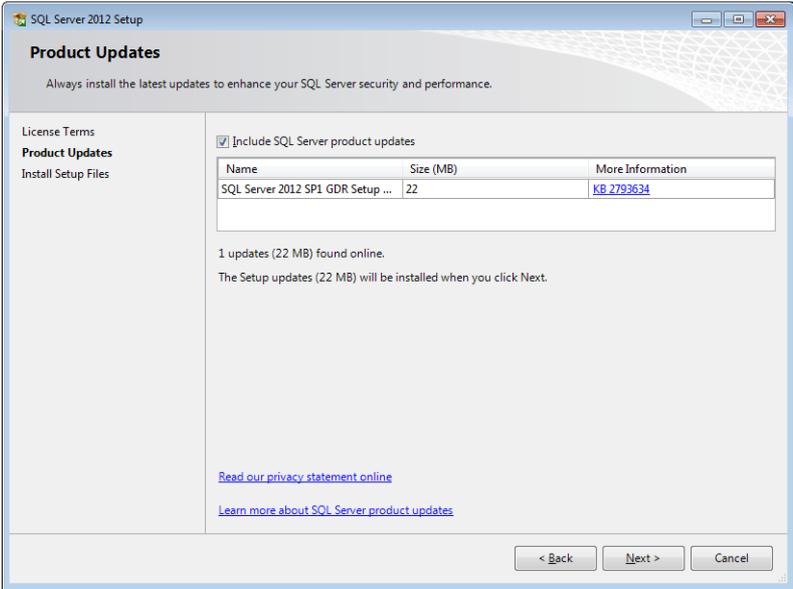
1. Download SQL Server 2012 Express Edition from Microsoft's website.
2. Double-click the downloaded executable file.
3. The [SQL Server Installation Center] window is displayed. Select [New SQL Server stand-alone installation or add features to an existing installation].



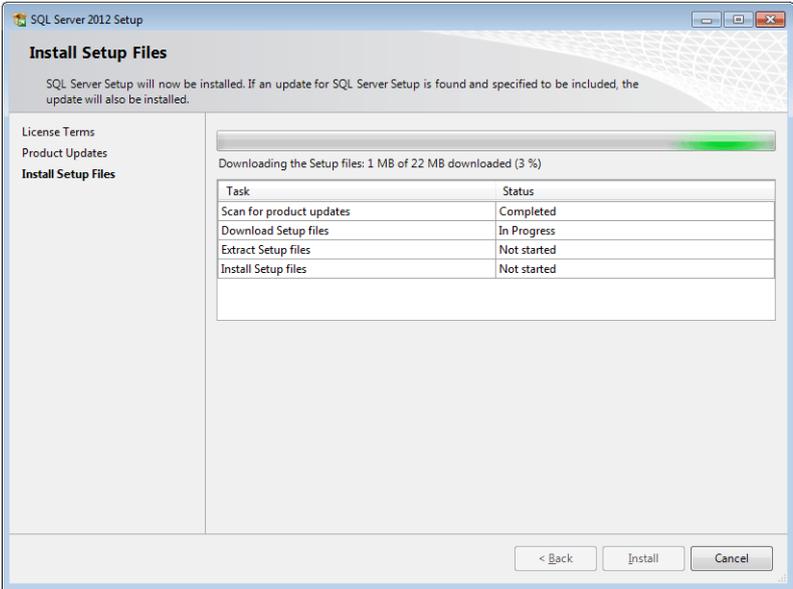
4. The license terms are displayed. Select the [I accept the license terms.] checkbox and click the [Next] button.



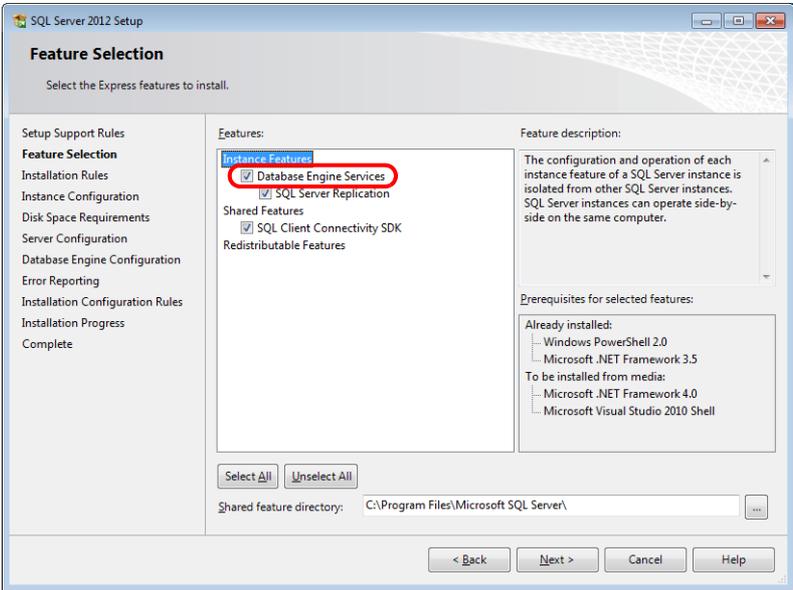
5. The [Product Updates] window is displayed. Proceed by following the instructions.



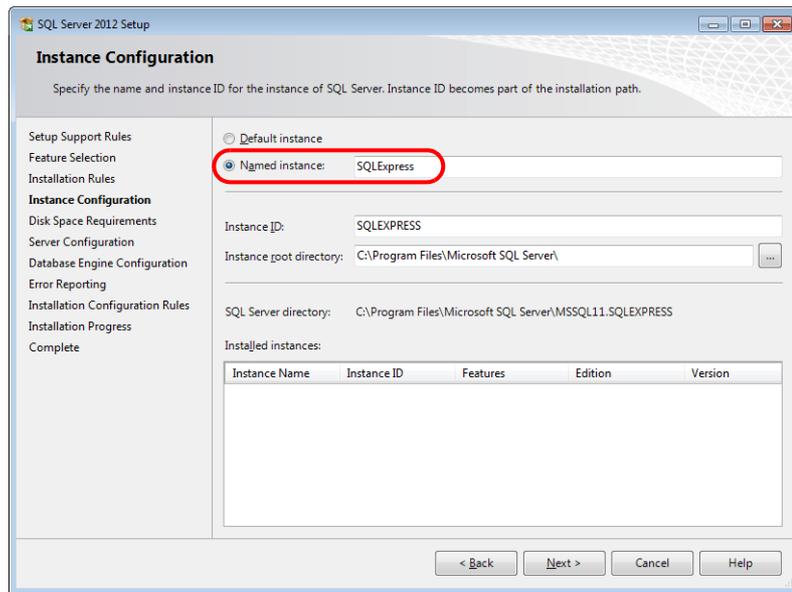
6. The [Install Setup Files] window is displayed and installation of setup files starts.



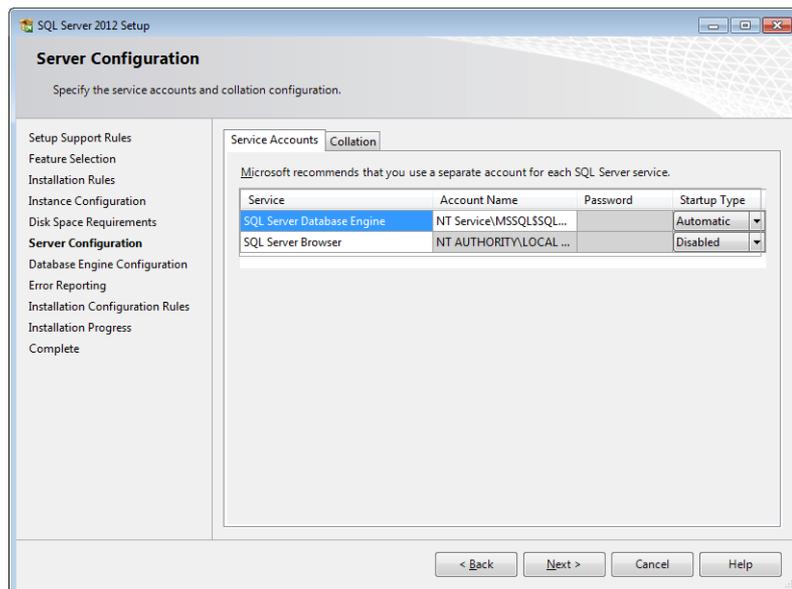
7. The [Feature Selection] window is displayed. Select [Database Engine Services].



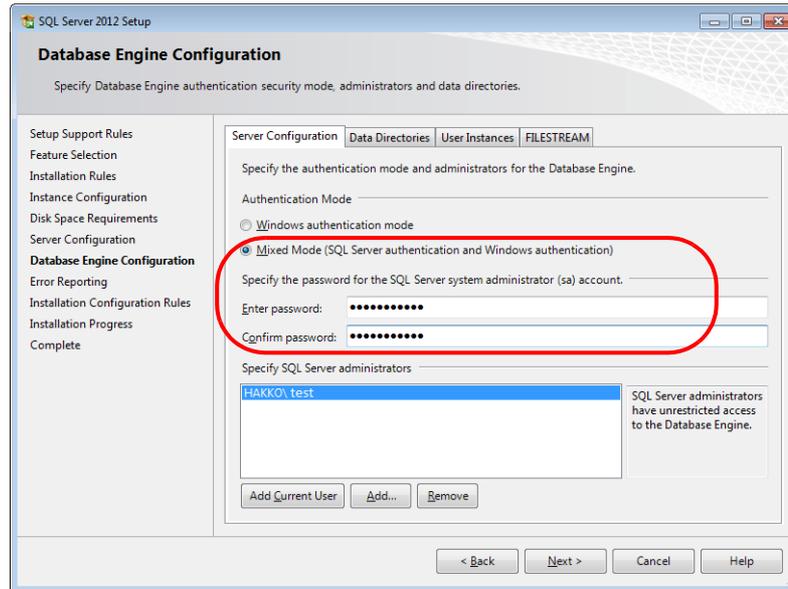
- The [Instance Configuration] window is displayed. Select the [Named instance] radio button and proceed to the next screen.



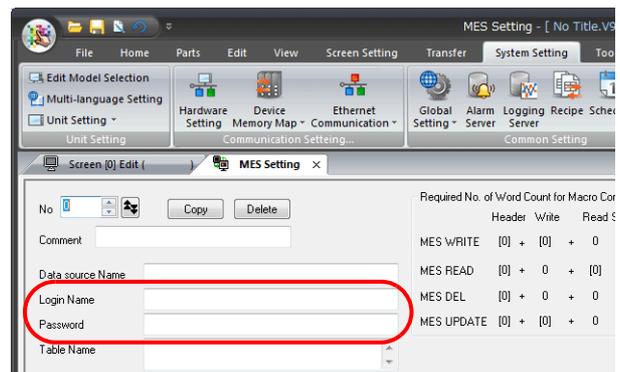
- The [Server Configuration] window is displayed. Click the [Next] button.



10. The [Database Engine Configuration] window is displayed. Select [Mixed Mode] and enter a password.

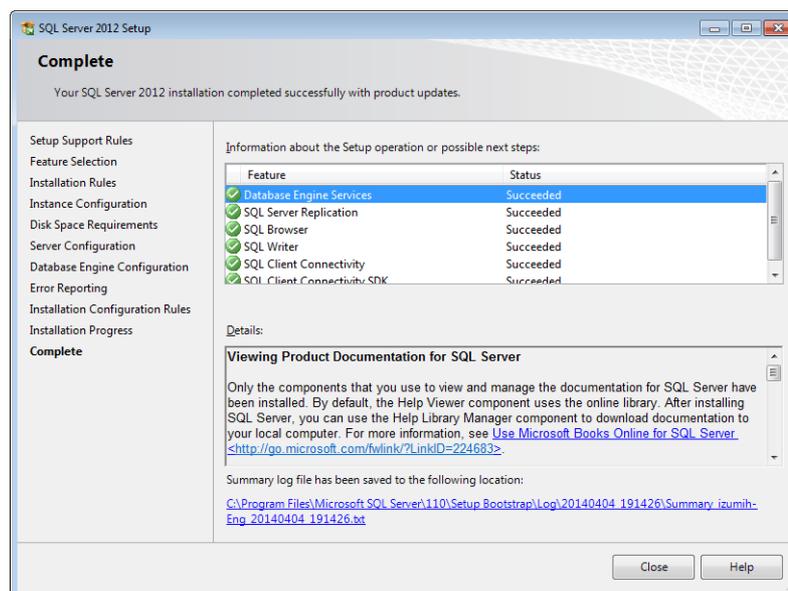


The password is required when connecting to the database and configuring MES settings in V-SFT. Take care managing your password and do not lose it.

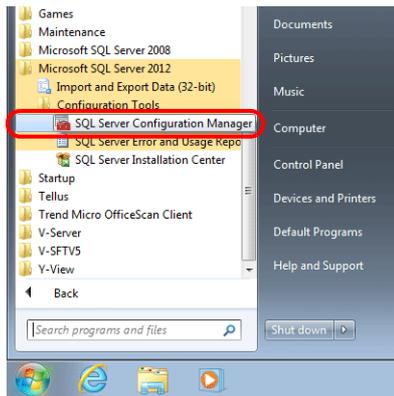


11. The [Error Reporting] window is displayed. Click [Next] to start installation.

12. The [Complete] window is displayed when installation is finished. Click the [Close] button to exit.



- 13. Restart the PC.
- 14. From the Windows [Start] menu, click [All Programs] → [Microsoft SQL Server 2012] → [Configuration Tools] → [SQL Server Configuration Manager].



- 15. SQL Server Configuration Manager starts. Check that SQL Server (SQL Express) is running.



This completes the installation procedure.

Creating an SQL Server Database

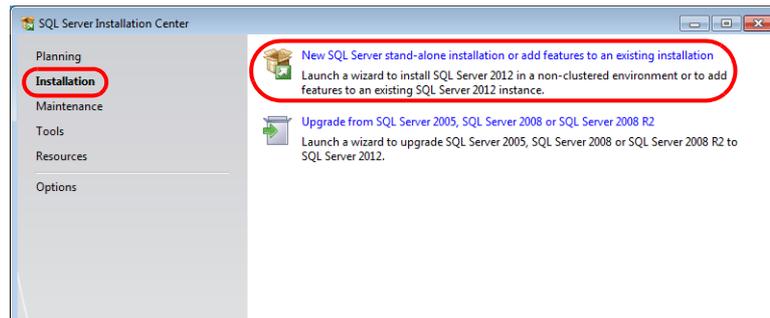
An SQL Server database can be created using SQL Server Management Studio Express.

Microsoft SQL Server Management Studio Express: SSMSE

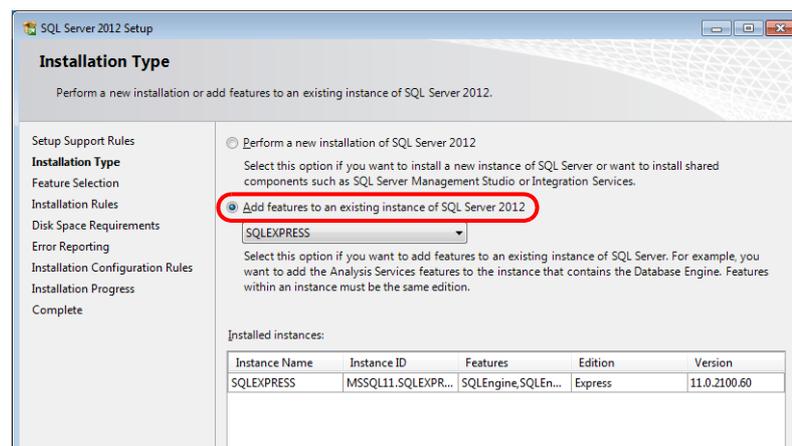
An easy-to-use, graphical management tool intended for management of SQL Server 2012 Express Edition.

Installation

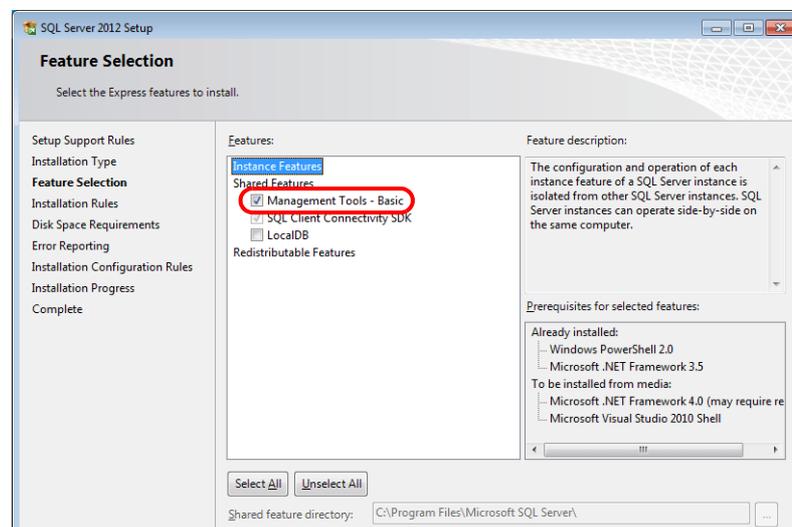
1. Download SQL Server Management Studio Express from Microsoft's website.
2. Double-click the downloaded file.
3. The [SQL Server Installation Center] window is displayed. Select [New SQL Server stand-alone installation or add features to an existing installation].



4. The [Product Updates] window is displayed. Proceed by following the instructions.
5. The [Installation Type] window is displayed. Select the [Add features to an existing instance of SQL Server 2012] radio button.

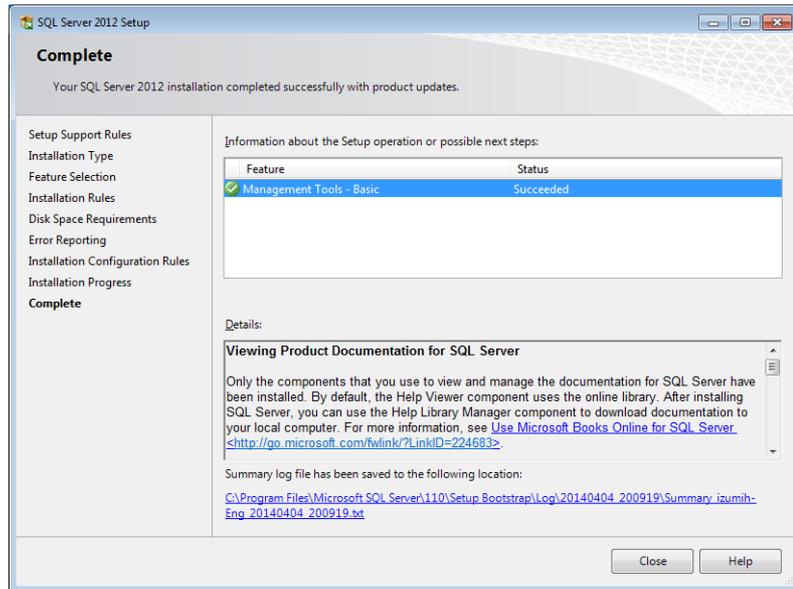


6. The [Feature Selection] window is displayed. Select the [Management Tools - Basic] checkbox.



7. Click [Next] to start installation.

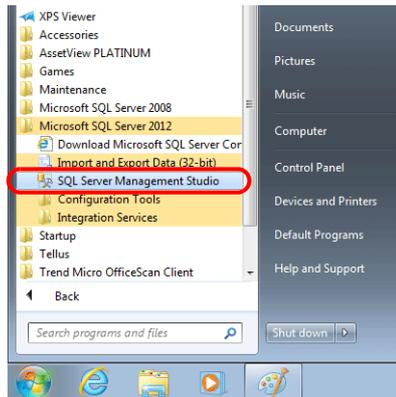
- The [Complete] window is displayed when installation is finished. Click the [Close] button to exit.



- Restart the PC.
This completes the installation procedure.

Starting SQL server management studio express

- From the Windows [Start] menu, click [All Programs] → [Microsoft SQL Server 2012] → [SQL Server Management Studio].

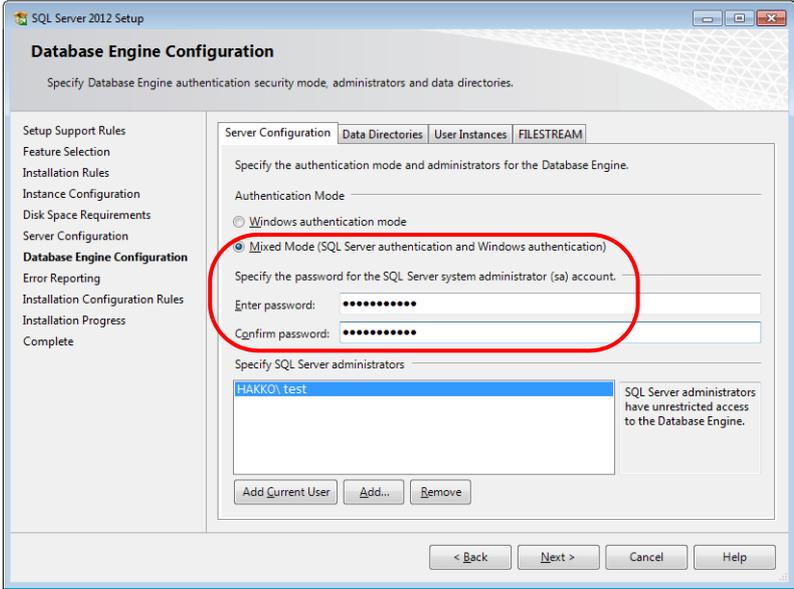


- The [Connect to Server] window is displayed. Enter the required information and click the [Connect] button.

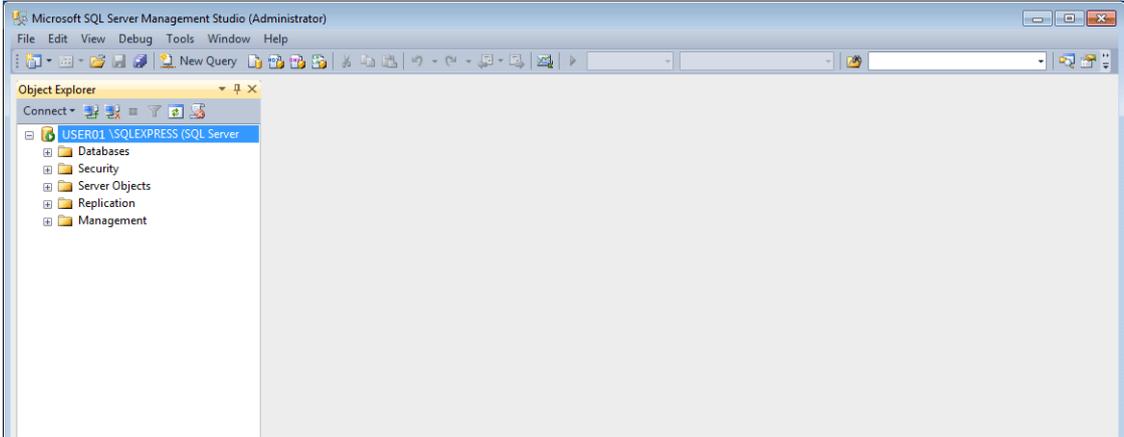


Item	Description
Server name	Select the server name of the SQL Server.
Authentication	Select "SQL Server Authentication".
Login	Enter a user name. The user name "sa" is entered in this example.
Password	Enter the password.

The password for "sa" was specified on the [Authentication Mode] window displayed during installation of SQL Server 2012 Express Edition (see page 6-27).

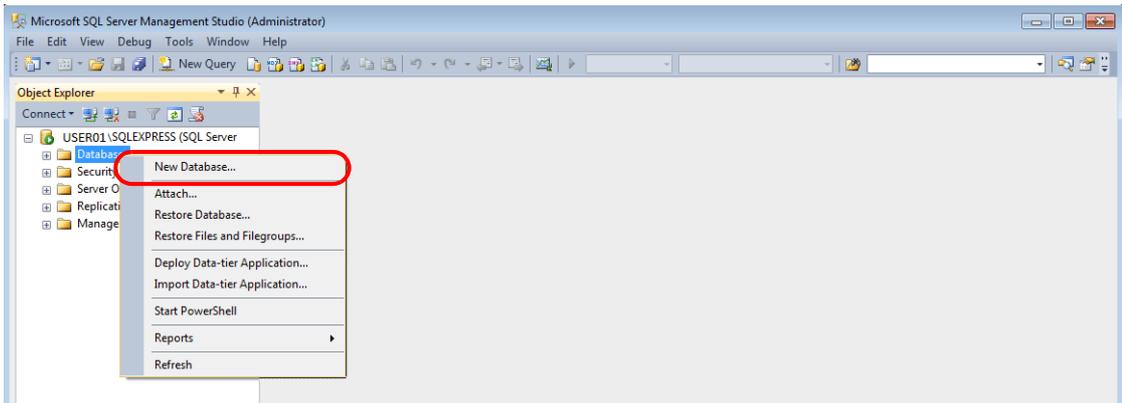


3. SQL Server Management Studio Express starts up.

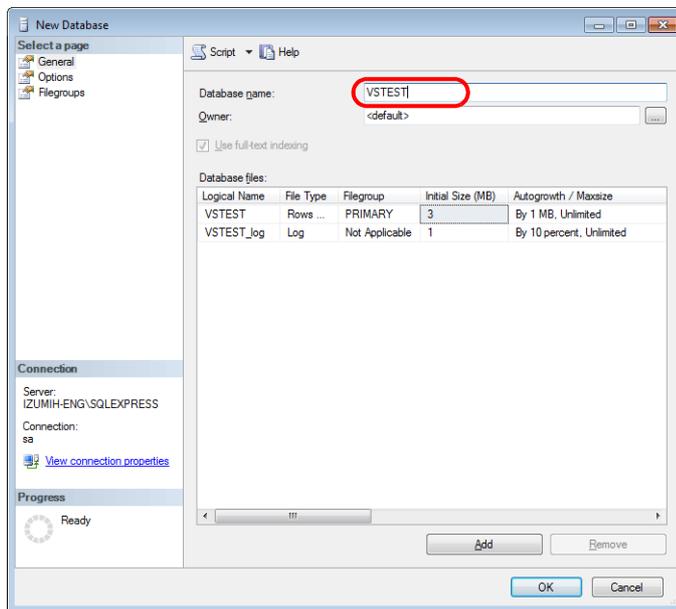


Creating a new database

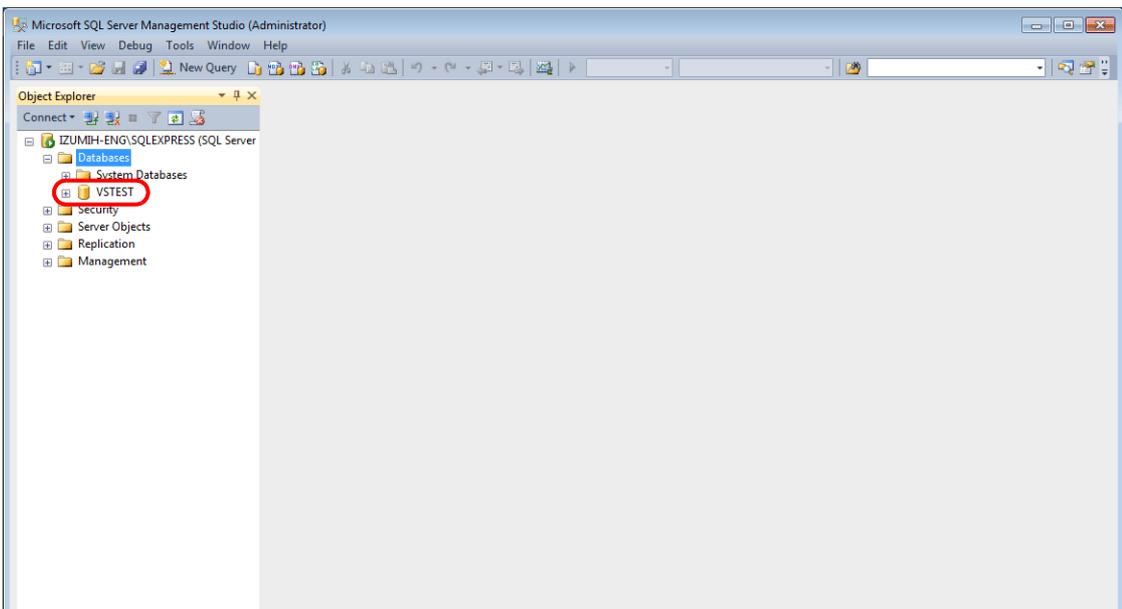
1. Select [Databases] and click [New Database] on the right-click menu.



2. The [New Database] window is displayed. Specify a database name and click the [OK] button.

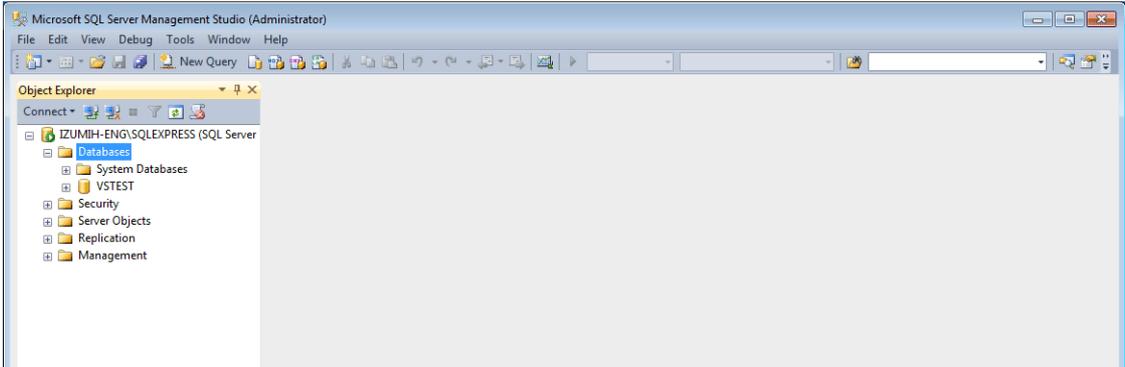


3. A new database is created.

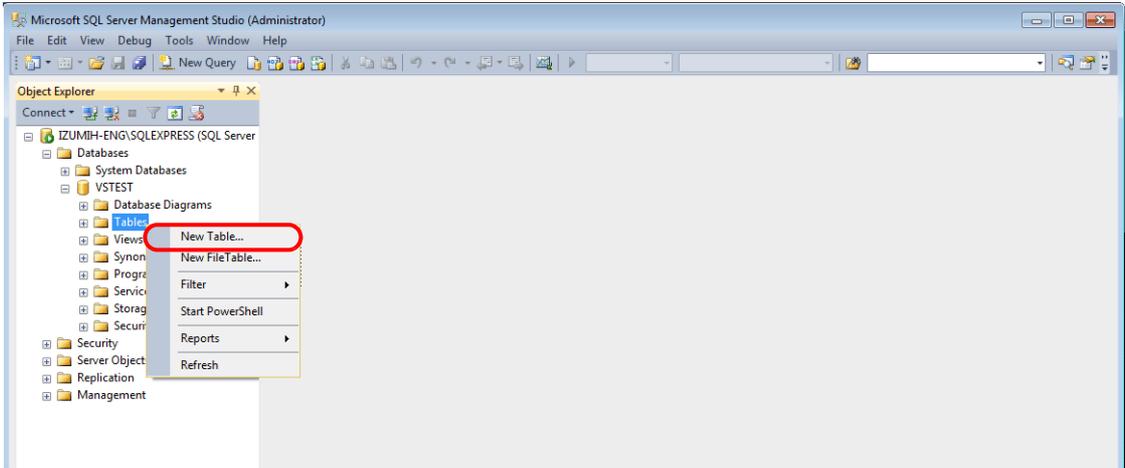


Creating a new table

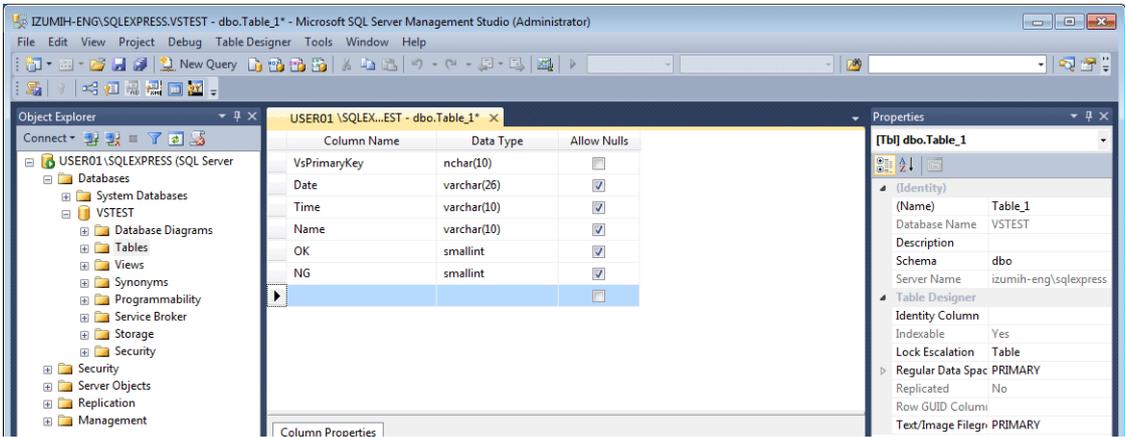
- 1. Start SQL Server Management Studio Express.



- 2. Select the database created in the previous section and click [New Table] on the right-click menu.



- 3. The table creation screen is displayed. Create a table by registering a line name and data type.



- Always set the primary key for V-Server for a database table to which data will be added.

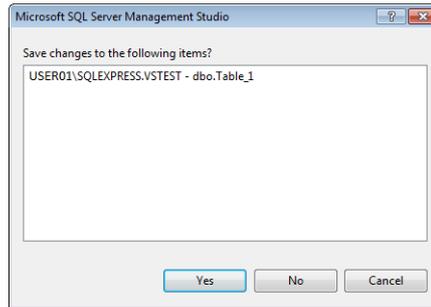
Line Name	Data Type	Length	Allow Nulls	Primary Key
VsPrimaryKey	varchar	26 bytes or more	No	<input type="radio"/>

- The following data types can be used with the MES interface function. These correspond to the data types in the MES settings in V-SFT.

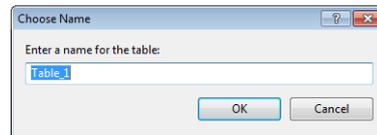
Database: Table				V-SFT: MES settings	
Line Name	Data Type	Length	Allow Nulls	Data type	Length
(Arbitrary)	smallint	1 word	Permitted	DEC-BCD	1 word
(Arbitrary)	int	2 word	Permitted		2 word
(Arbitrary)	Float	2 word	Permitted	FLOAT	2 word
(Arbitrary)	varchar	Arbitrary	Permitted	CHAR	256 bytes maximum



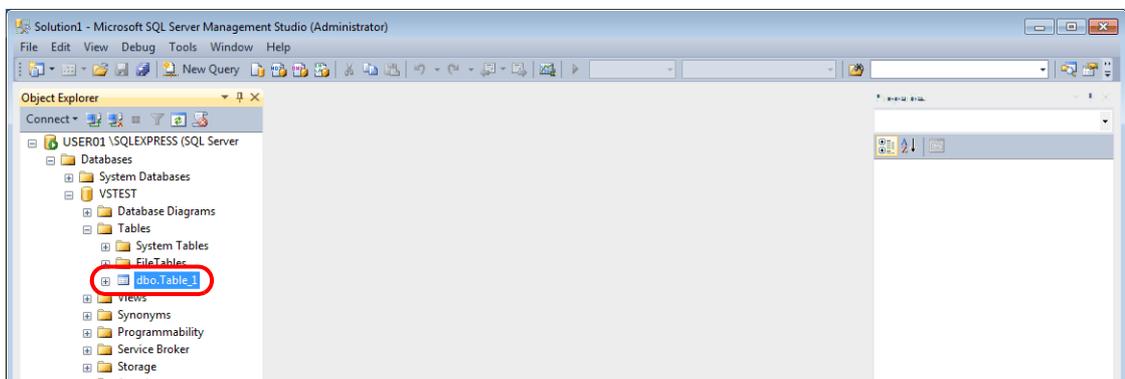
- When the table settings are complete, close the table. The confirmation dialog box is displayed. Click the [Yes] button.



- Enter a name and click the [OK] button.



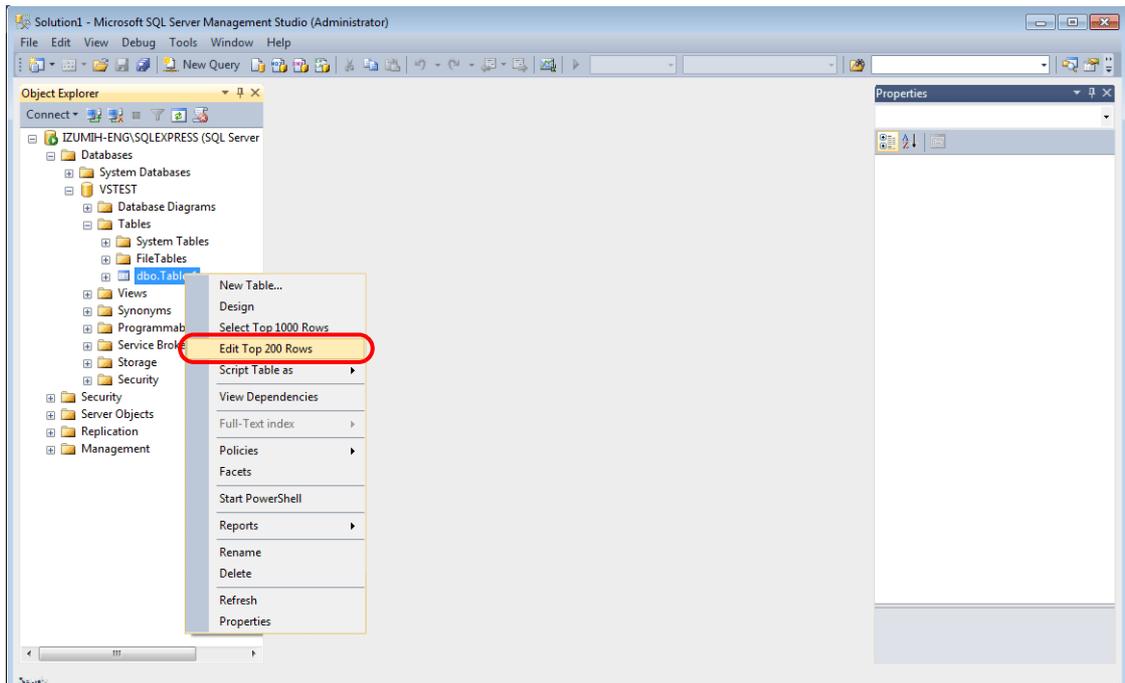
- The table is created.



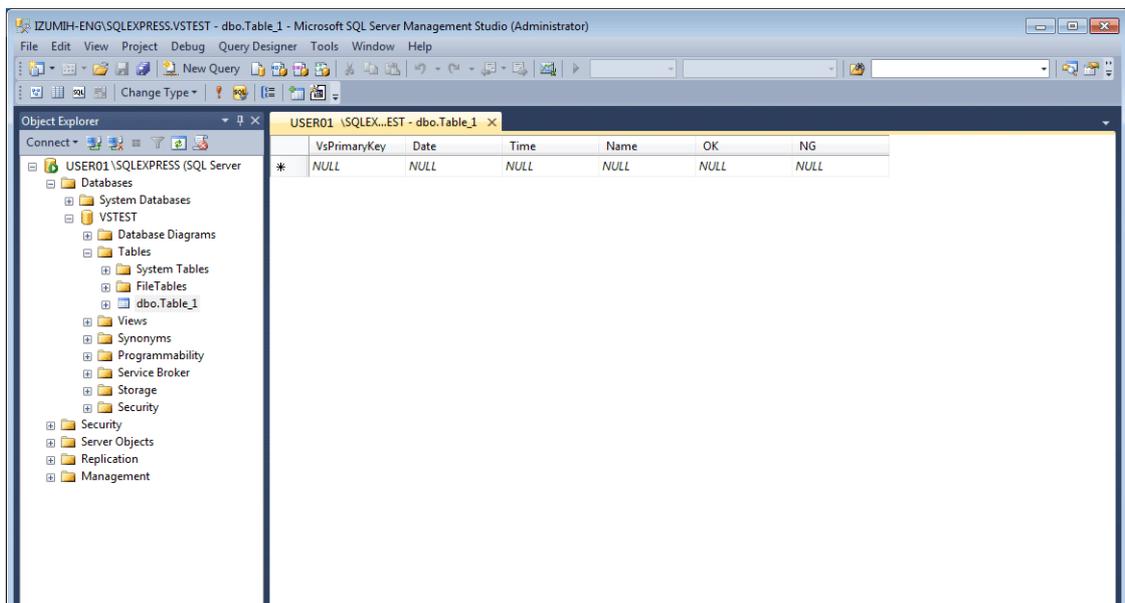
Opening a table

The data saved in the database can be checked according to the following procedure.

1. Select a table and click [Edit Top 200 Rows] on the right-click menu.



2. The table is opened. The line name registered when the table was created is displayed. Data is saved in each "NULL" field.



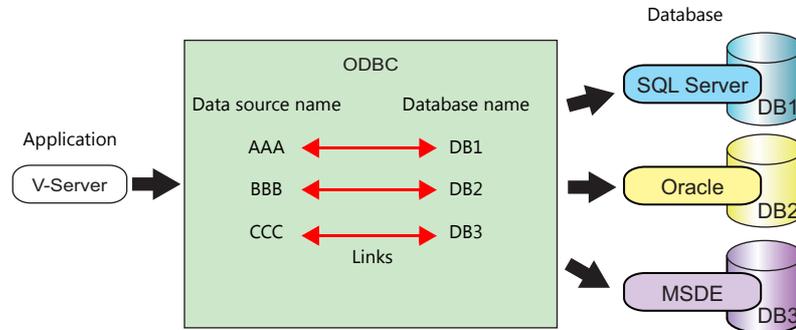
6.7.6 Data Source (ODBC) Settings

V-Server accesses the database via a data source (ODBC). Data source settings need to be configured to allow V-Server access to the database. This manual describes an example of configuration using Microsoft SQL Server 2012 Express Edition.

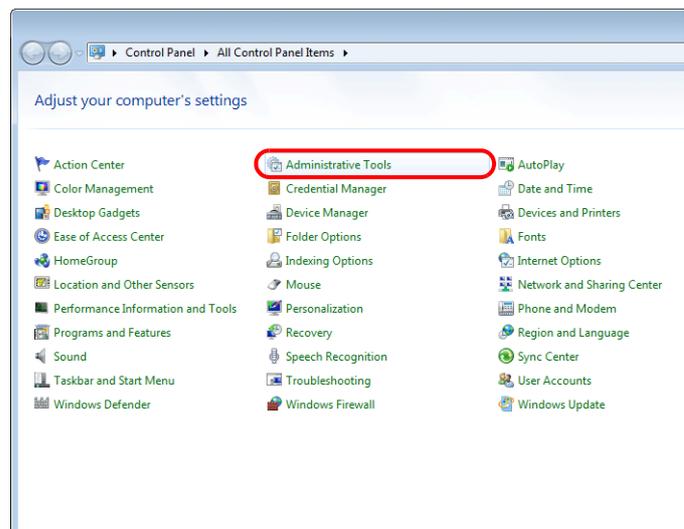
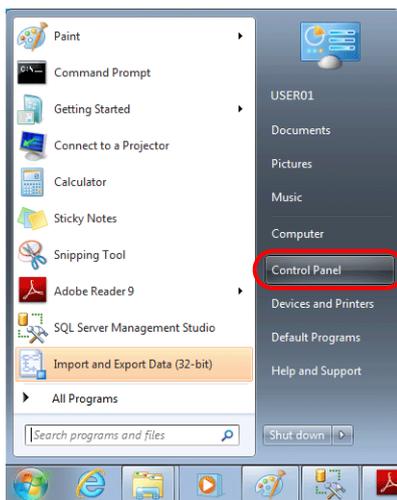
ODBC: Open DataBase Connectivity

ODBC is the interface between an application (V-Server) and the database.

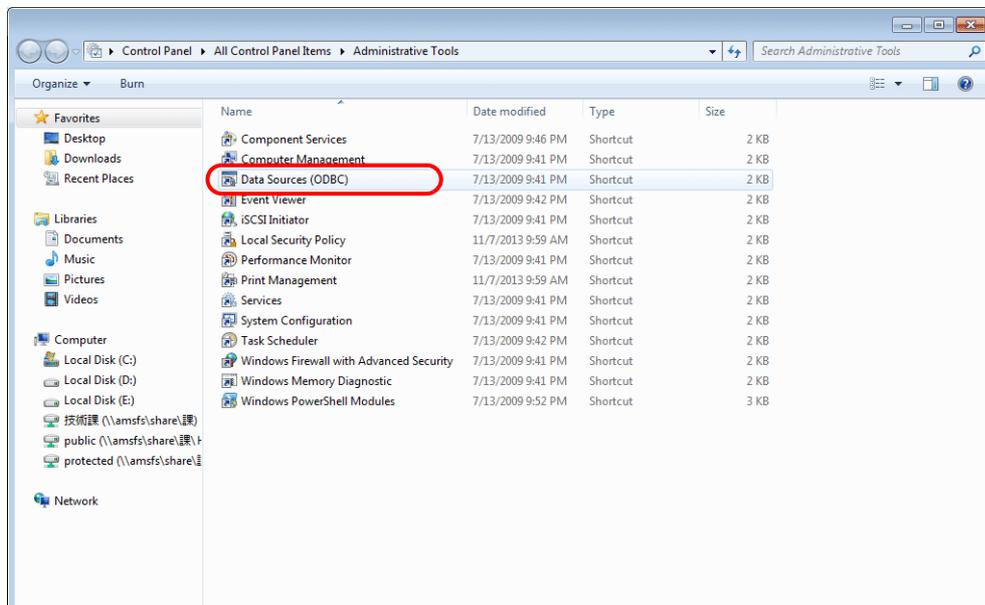
Because ODBC accommodates the differences in specifications between databases, users only need to create programs based on the ODBC-specified procedure in order to access those databases.



1. From the Windows [Start] menu, click [Control Panel] to display the Control Panel.
2. Click [Administrative Tools].



3. The [Administrative Tools] window is displayed. Double-click [Data Sources (ODBC)].





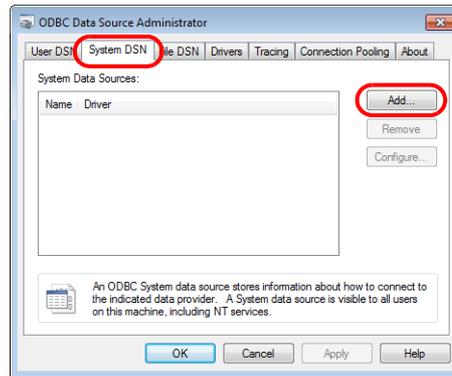
For 64-bit versions of Windows XP/Vista/7/8

The 32-bit version of ODBC must be used because V-Server is a 32-bit application.

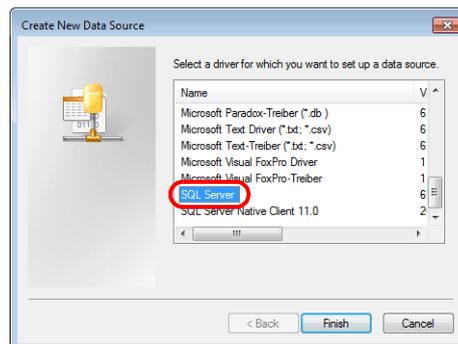
1. From the Windows [Start] menu, click [Computer], double-click [Local Disk (C:)] → [Windows] → [SysWOW64].
2. Double-click the "odbcad32" application. The 32-bit version of ODBC starts up.
3. Press the [Ctrl] + [Shift] + [Esc] keys together to start Windows Task Manager and check which version of ODBC is running.

On the [Processes] tab, the 32-bit version is running if "odbcad32.exe *32" is shown in the list.

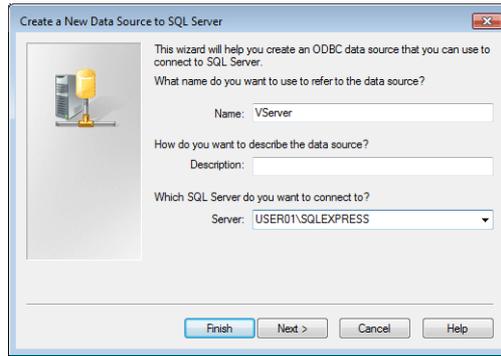
4. The [ODBC Data Source Administrator] window is displayed. Select the [System DSN] tab and click the [Add] button.



5. The [Create New Data Source] window is displayed. Select [SQL Server] and click the [Finish] button.

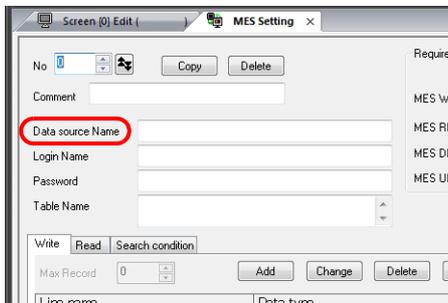


6. The following window is displayed. Configure the required settings and click the [Next] button.



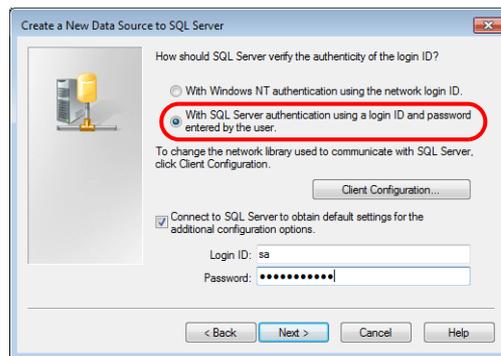
Item	Description
Name	Specify a data source name.
Server	Specify a SQL Server name.

- The data source name is used in the MES settings in V-SFT.
- The SQL Server name can be checked in SQL Server Management Studio Express.



7. The following window is displayed.

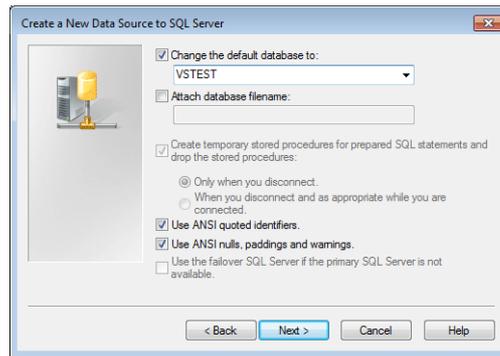
Select the [With SQL Server authentication using a login ID and password entered by the user] radio button and specify a login ID and password.



Item	Description
Login ID	Enter a login ID ("sa" in this example).
Password	Enter the password.

The login ID ("sa") and password were specified on the [Authentication Mode] window displayed during installation of SQL Server 2012 Express Edition (see [page 6-27](#)).

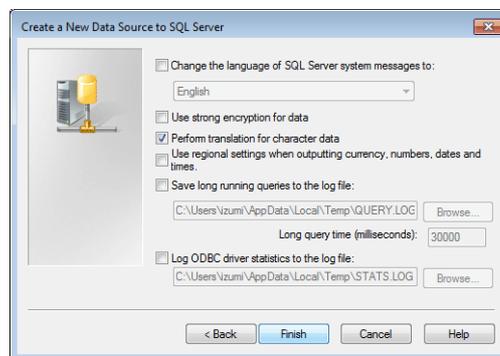
8. Click the [Next] button. The following window is displayed.



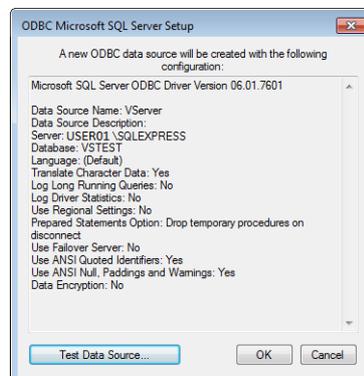
9. Select the [Change the default database to] checkbox and select a database.

Select the database created using Microsoft SQL Server Management Studio Express (see [page 6-32](#)).

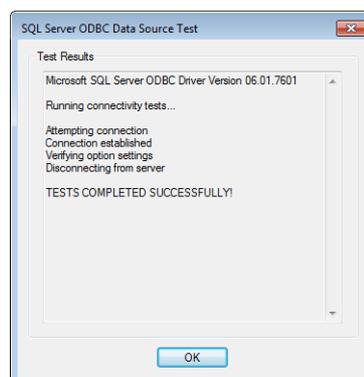
10. Click the [Next] button. The following window is displayed.



11. Click the [Finish] button. The following window is displayed.

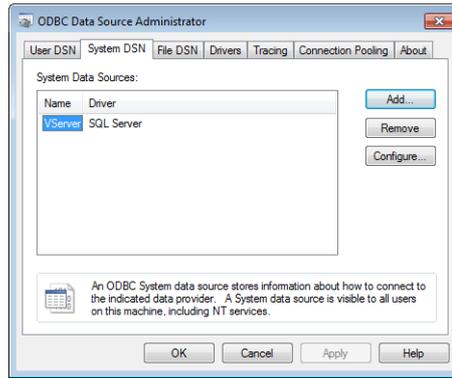


12. Click the [Test Data Source] button. When a connection has been successfully established, the following window is displayed.



13. Click [OK]. The previous screen reappears.

14. Click [OK]. The data source is registered.

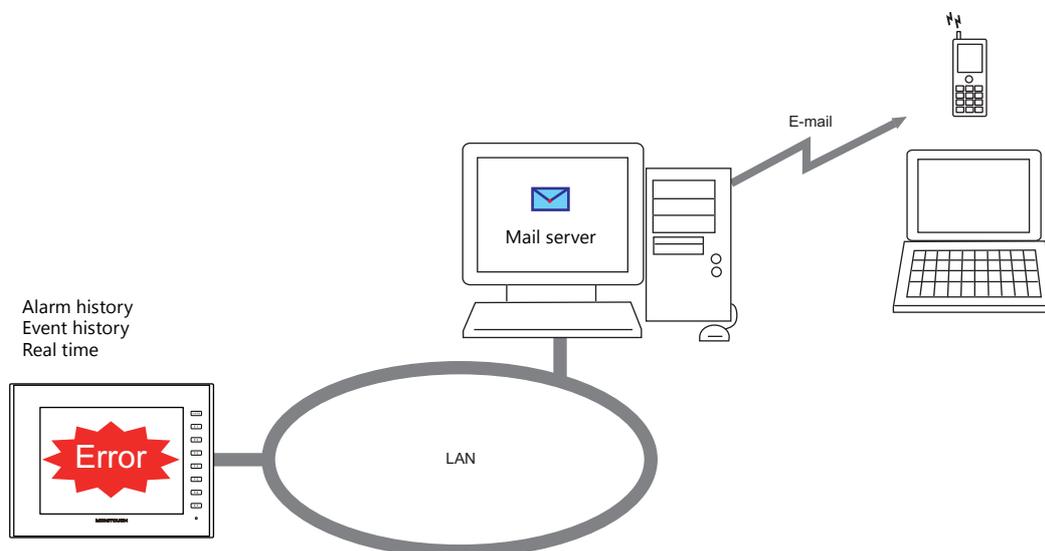


This completes the configuration of settings.

6.8 E-mail Notification

6.8.1 Overview

- E-mail notifications can be sent according to the ON/OFF status of alarm bits. If a problem occurs, you can be notified of the fault even at a remote location.



- SSL/TLS communication is also supported.
- When e-mail notifications are sent from multi-language screens, notification messages are sent in all relevant languages.

Example of e-mail notification main body

```
2014/04/10 18:55:04 <ON> A タンク異常発生
Apr/10/2014 18:55:04 <ON> Tank A Error
2014/04/10 18:55:04 <ON> A 탱크 异常发生
2014/04/10 18:55:04 <ON> A 탱크 發生異常
2014/04/10 18:55:04 <ON> 탱크 A 에러
```

- Supported items and ports used

Port	Item	Other
LAN (built-in)	Alarm history Event history Real time	The mail server must reside on the LAN.

6.8.2 Detailed Settings

To send e-mail notifications, IP address settings on the V9 series unit and e-mail settings for registering the mail server and recipients of notification must be configured.

IP Address Settings

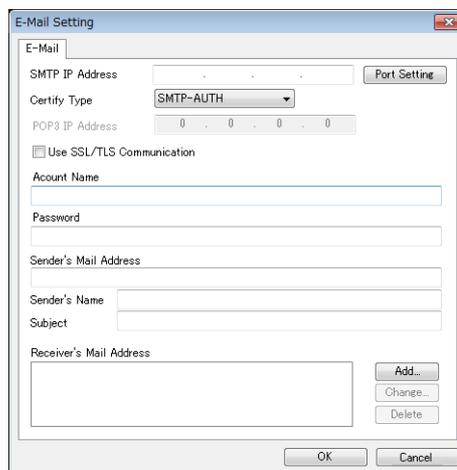
For information on IP address settings, refer to “V9 Series Unit IP Address Settings” page 6-2.

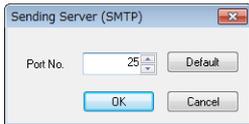
E-mail Settings

There are two ways to configure e-mail settings: using the V-SFT editor or using local mode on the V9 series unit.

Setting using the V-SFT editor

[System Setting] → [Ethernet Communication] → [E-Mail]



Item	Description	
SMTP IP Address	Set the network IP address of the mail server.	
Port Setting	Set the SMTP port number of the mail server. 0 to 65535 (default: 25) <div style="text-align: center;">  </div> Example: Yahoo Corporation's Yahoo e-mail: Port No. 587 SSL/TLS communication: Port No. 465	
Certify Type	Set the authentication method in accordance with the specifications of the mail server.	
	No authorization	No authentication is performed.
	POP before SMTP* ¹	Authentication is performed with the POP3 server. Configure the following settings. <ul style="list-style-type: none"> • POP3 IP Address • Account Name (63 one-byte characters or less) • Password (63 one-byte characters or less)
SMTP-AUTH* ² LOGIN PLAIN CRAM-MD5 DIGEST-MD5 * ³	Authentication is performed with the SMTP server. Configure the following settings. <ul style="list-style-type: none"> • Use SSL/TLS Communication • Account Name (63 one-byte characters or less) • Password (63 one-byte characters or less) 	
Sender's Mail Address	Set the sender's mail address. It is recommended to create a dedicated account for the V9i on the mail server and to set its address here.	
Sender's Name	Set the sender's name. A name consisting of both one- and two-byte characters is not valid. It is displayed in the "Sender" field in an incoming e-mail.	
Subject	Set the subject. It is displayed in the "Subject" field in an incoming e-mail.	

Item	Description
Receiver's Mail Address	8 maximum Register the recipient mail addresses. Register all mail addresses to receive notifications from the V9i series unit. * When creating a screen program and the recipients of e-mail notification is yet to be determined, dummy recipients from numbers 0 to 8 can be used instead. The actual recipient addresses can be changed later on the V9 series unit in the [E-Mail Setting] in Local mode.
Add	Register a new recipient address.
Change	Change a registered address.
Delete	Delete a registered address.

*1 POP before SMTP

POP before SMTP uses POP3 authentication that is performed when e-mail is received. SMTP permits the sending of e-mail from the authenticated IP address for a limited time.

Since authentication is disabled after a specific time has elapsed, authentication with POP3 will be required again.

In the case of authentication with POP3, a password is sent in plain text. POP before SMTP using APOP is also available. APOP allows a password to be sent in encrypted form. Note that the V9 series only supports POP3.

*2 SMTP Authentication

Authentication is performed with the SMTP server. SMTP Authentication is classified into several authentication methods. The V9 series supports LOGIN, PLAIN, CRAM-MD5, and DIGEST-MD5 methods.

Since the SMTP server automatically performs authentication according to the available method, users are not requested to make configurations.

<Automatic authentication steps>

1. Compliant with PLAIN?
2. Compliant with LOGIN?
3. Compliant with CRAM-MD5?
4. Compliant with DIGEST-MD5?
5. Authentication failure

About the authentication methods

- PLAIN
The PLAIN method sends user names and passwords in plain text (not in encrypted form).
- LOGIN
LOGIN is similar to PLAIN but it often sends information, such as USER xxxxx or PASS xxxxxx, separately (as performed with POP3). Because the standard specifications of LOGIN are not established, there are e-mail servers that use LOGIN in their own way.
- CRAM-MD5
With CRAM-MD5, the server sends an arbitrary character string (a challenge string) to the client. The client then performs a specific computing process called Message Digest 5 (MD5) by using the challenge string and password, and returns the result to the server. The server that receives the result also performs the same process. When both results match each other, the server judges that the client knows the correct password and grants authorization.
- DIGEST-MD5
DIGEST-MD5, an expanded version of CRAM-MD5, has an enhanced resistance to dictionary attacks and brute force attacks.

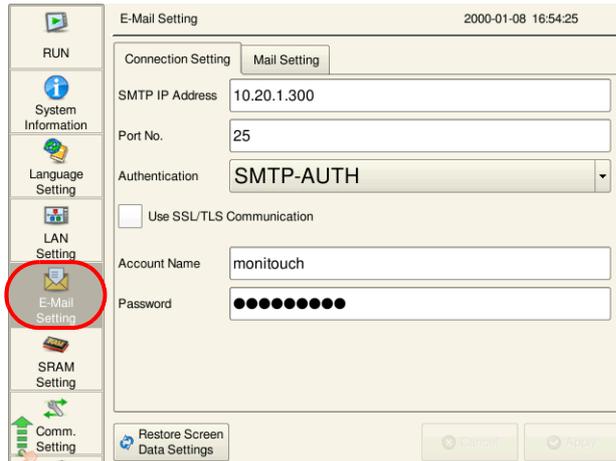
*3 Only "auth" mode is supported for "quality protection". It does not support "auth-int" and "auth-conf" modes.

Setting using Local mode on the unit

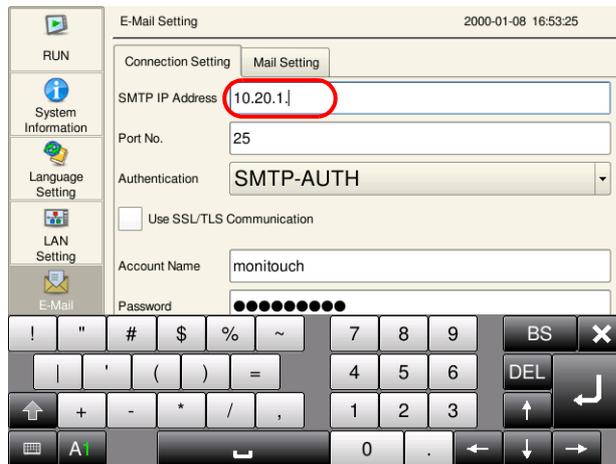
1. Press the [SYSTEM] switch on the unit to display the system menu at the top of the screen.



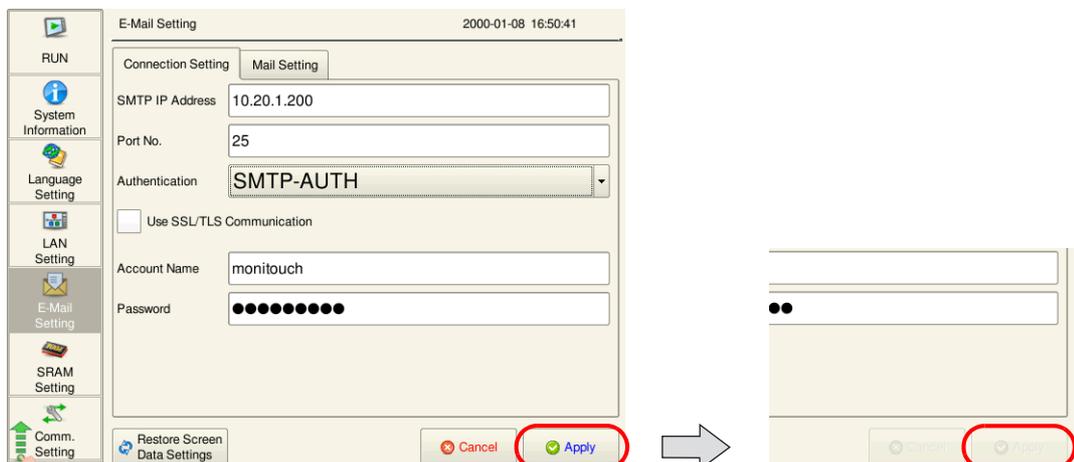
2. Press the [Local] switch on the system menu. The Local mode screen is displayed on the unit.
3. Press the [E-Mail Setting] switch on the left of the screen to display the [E-Mail Setting] screen.



4. Tap an item to change its setting if necessary.



5. Press the [Apply] switch at the bottom right of the screen to accept the settings. When the changes are accepted, the [Apply] switch is disabled.

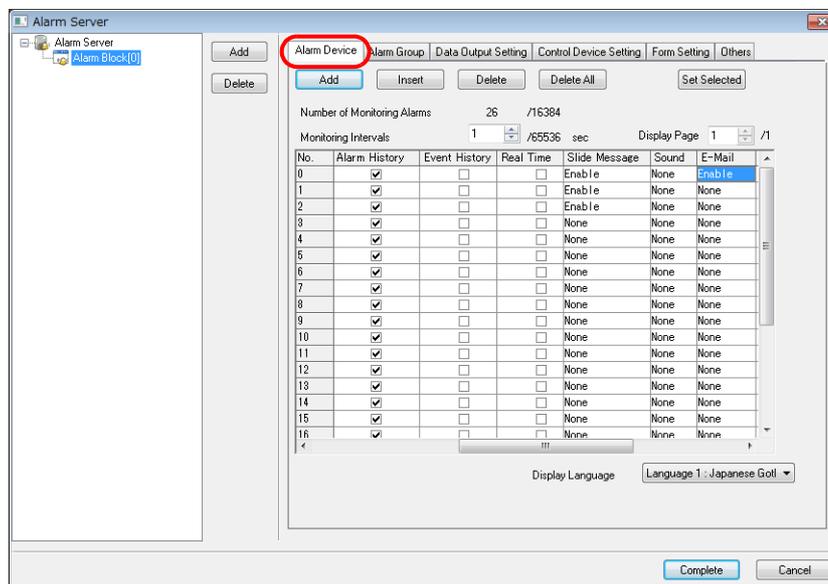


Alarm Server

E-mail notifications are linked to alarm bits so the [E-Mail Enable/None] setting and recipient e-mail addresses must be selected in the alarm server settings.

This section describes the settings required for sending e-mail notifications. For details on other settings, refer to "8 Alarm" in the V9 Series Reference Manual 1.

1. Click [System Setting] → [Alarm Server] → [Alarm Block] to display [Alarm Device].



2. Select "Enable" for [E-Mail] for the device memory to send e-mail notifications and configure the detailed settings.



Item	Description
Send when the alarm occurs	Send an e-mail notification when an error occurs.
Send when the alarm is reset	Send an e-mail notification when the system recovers from an error.
Send to	Select the recipient e-mail addresses. * When creating a screen program and the recipients of e-mail notification is yet to be determined, dummy recipients from numbers 0 to 8 can be used instead. The actual recipient addresses can be changed later on the V9 series unit in the [E-Mail Setting] in Local mode.

6.8.3 System Device Memory (\$s)

Information on sent e-mail messages is output to system device memory (\$s).

\$s	Description	
\$s1005	If the V9 series unit receives send requests continually, the number (0 to 16) of e-mail messages waiting to be sent is stored. The V9i series can keep up to 16 e-mail messages. Any more than 16 messages are discarded.	
\$s1006	Stores error information on e-mail messages.	
	Error No.	Cause
	0	Normal
	1	E-mail address error
	6	Network not connected
50	SMTP transmission error	

-	
Incorrect recipient mail address	
Incorrect SMTP/POP3 server IP address	
SMTP server refusal	
Incorrect port number	
Incorrect SSL/TLS settings	
Incorrect account name/password	
Authentication method error	
Incorrect sender's mail address	
Connection lost	

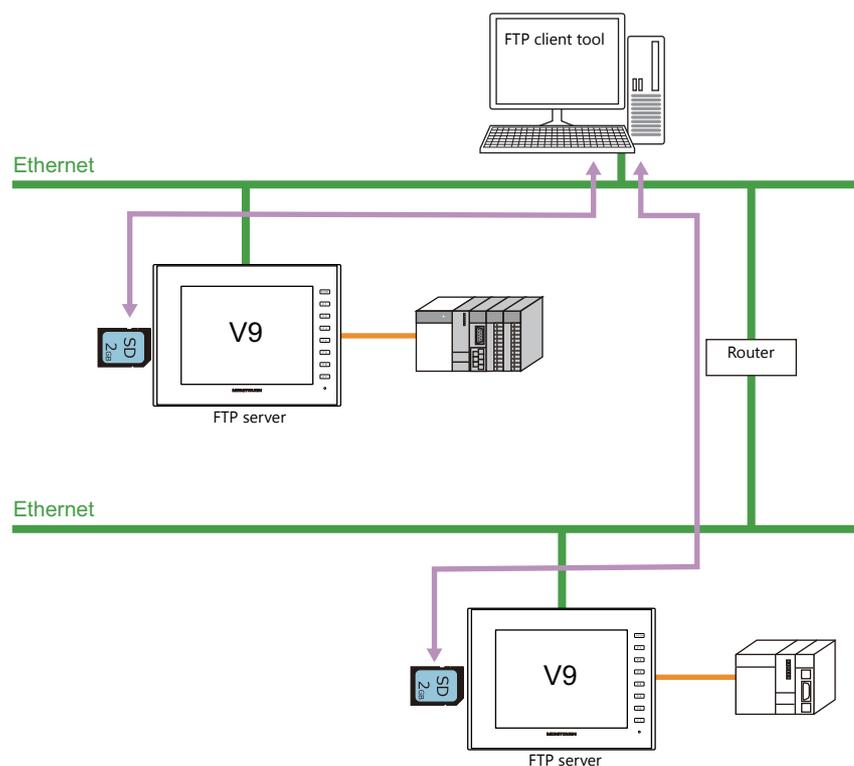
6.9 FTP server

6.9.1 Overview

The V9 series can serve as an FTP server.

An FTP client tool installed on the PC can be used to access a V9 series unit over Ethernet and perform reading and writing data on a storage device inserted into the V9 series.

A standard FTP tool included with Windows is available for reading, writing, and editing files on a storage device without the need for installing any special tool.



Applicable Models	Other
V9 series with built-in LAN port	Storage Device

6.9.2 Specifications

Functional Capabilities

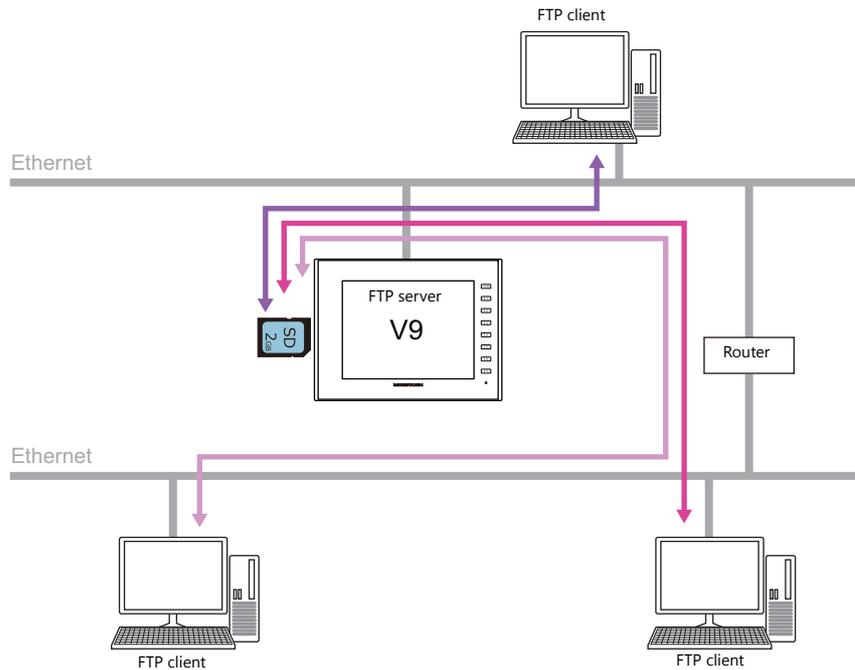
Item	Specifications	Location of Settings
Protocol	TCP/IP	-
User Name	1 to 12 one-byte alphanumeric characters (case-sensitive)	Editor, Local mode ^{*1}
Password	1 to 8 one-byte alphanumeric characters (case-sensitive)	Editor, Local mode ^{*1}
Port number	20, 21	(Fixed)
No. of clients ^{*2}	Maximum of 3 clients	-
Input supervisory time	1 to 60 minutes (default: 15 minutes) ^{*3}	Editor, Local mode
File readout size	Unlimited (within the storage capacity)	-
File name	One-byte alphanumeric characters only	-
Requirement	Only operable in RUN mode (not operable in local mode)	-

^{*1} Maximum of 16 characters when registering in Local mode.

However, a maximum of 8 characters for a name/password common with the security function.

*2 Clients (FTP clients)

This manual defines a client or FTP client as a PC that transmits commands for reading/writing data to an FTP server. A maximum of three client PCs can access a V9 series unit.



*3 If no command is received from the FTP client within the time period specified for [Input Supervisory Period], the V9 series unit automatically disconnects the client.

Compatible FTP Client Tools

Tools and Functions	Computer OS/Monitouch Series
Command Prompt (included with Windows as standard)	Windows XP SP3 Windows 7 Windows 8
ftp.exe (included with Windows as standard)	
Windows Explorer (included with Windows as standard)	
FFFTP version 1.96b (freeware)	
Data transfer service	V9 Series

Supported FTP Commands

The following commands can be used with the FTP server on the V9 series unit.

Command Name	Function	Refer to
cd	Changing the current directory	-
close	Closing the connection	-
dir	Displaying the file information	page 6-54
ls	Displaying folder and file names	page 6-54
put	Sending a file	page 6-55
get	Retrieving a file	page 6-55
delete	Deleting a file	page 6-56
rename	Renaming a file	page 6-56
pwd	Displaying the current folder name	-
mkdir	Creating a folder	page 6-56
rmdir	Deleting a folder	-
quit	Exit the FTP client tool after disconnecting the client.	page 6-53

6.9.3 Detailed Settings

Click [System Setting] → [Ethernet Communication] → [FTP Server]. The [FTP Server Setting] window is displayed.



Item	Description
Use FTP server function	Select this checkbox to use the FTP server function. The FTP server function is not available unless this checkbox is selected.
User Name	1 to 12 one-byte alphanumeric characters (case-sensitive)
Password	1 to 8 one-byte alphanumeric characters (case-sensitive)
Input Supervisory Period	1 to 60 minutes (default: 15 minutes) *
Write enable	Select this checkbox to allow the FTP client to write, delete, and edit files. When this checkbox is not selected, only file reading is possible. (Default: unselected)
Specify a character set	Select this checkbox to match with the character code used by the FTP client. Unselected: UTF-8
Specify access drive	Select this checkbox to set the drive for access by the FTP server. Unselected Match with the setting of [System Setting] → [Storage Setting] → [Storage Connection Target]. Selected C: Built-in Socket D: USB-A Port

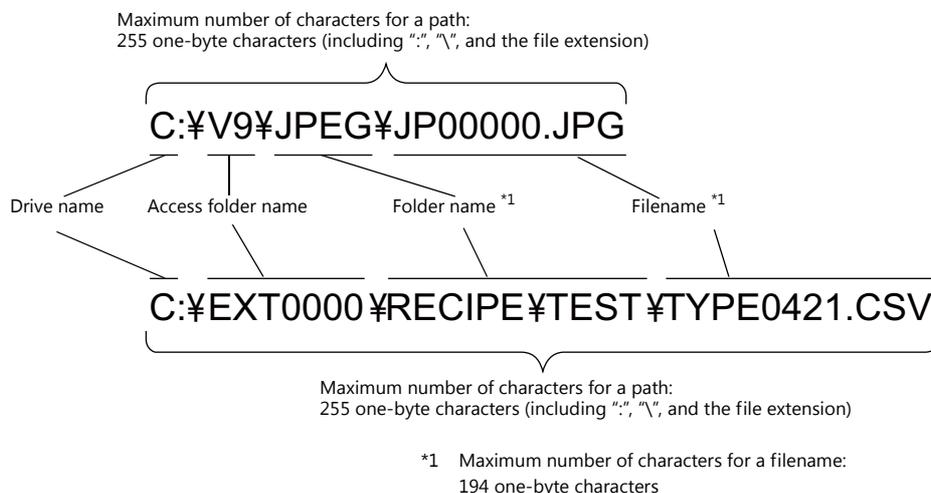
* If no command is received from the FTP client within the time period specified for [Input Supervisory Period], the V9 series unit automatically disconnects the client.

Registering user names and passwords

User names and passwords used by the FTP server function can also be registered in local mode on the V9 series unit. This means FTP users can be added without a PC or the V-SFT version 6 software. For details on operation in local mode, refer to the V9 Series Troubleshooting/Maintenance Manual.

6.9.4 Specifying File Paths

How to specify file paths



- Drive name
C: Inserted SD card
D: USB-A port (USB flash drive, etc.)

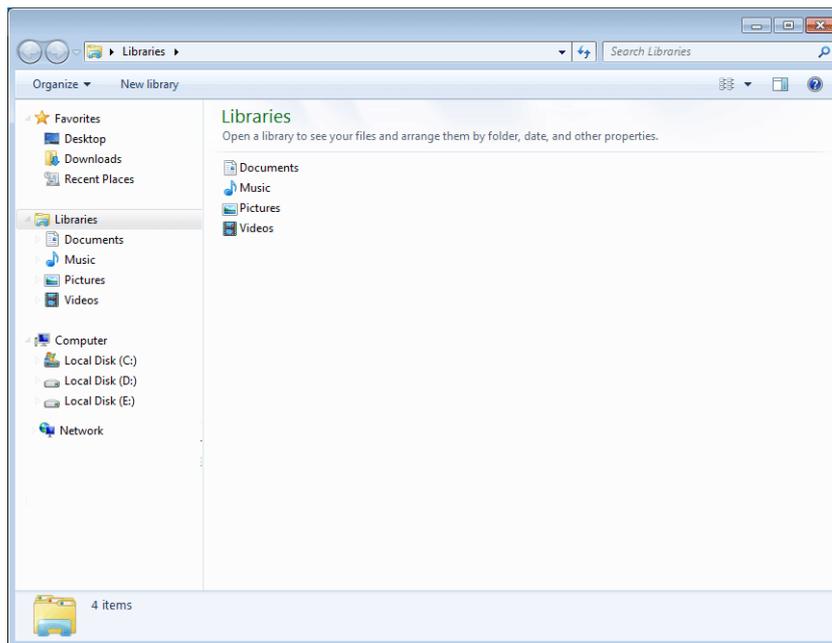
6.9.5 Login

This section explains the login procedure and how to operate the FTP tools.
Prepare the V9 series unit as instructed below before starting.

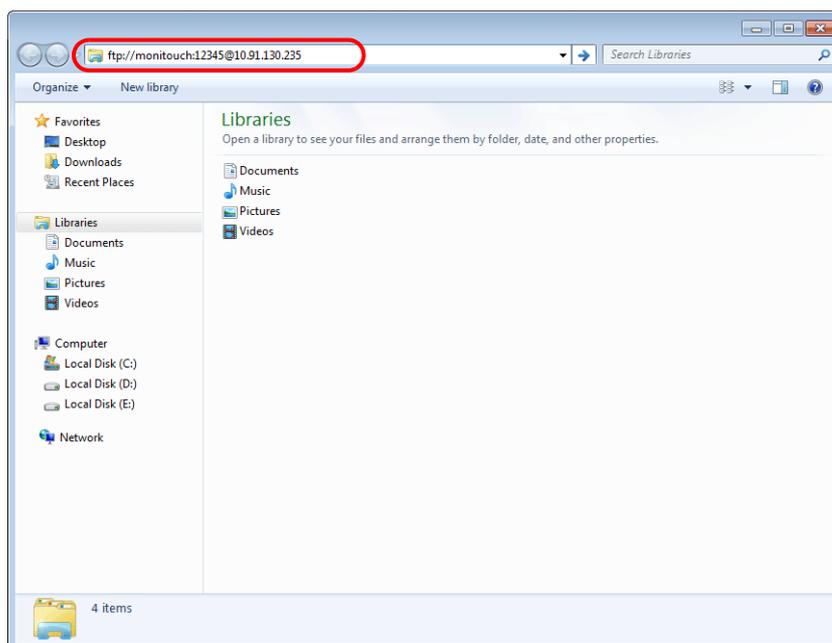
1. Transfer the screen program with configured FTP server settings to the V9i series unit.
2. Connect your computer to the V9 series unit via Ethernet.
3. Insert a storage device into the unit and set the unit to RUN mode.

Explorer (or Internet Explorer)

1. Start [Explorer].

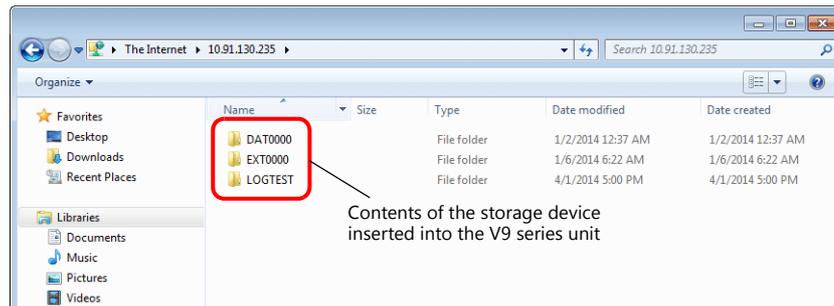


2. Enter the FTP command in the [Address] field.
Enter "ftp://user name:password@MONITOUCH IP address" and then press the [Enter] key.

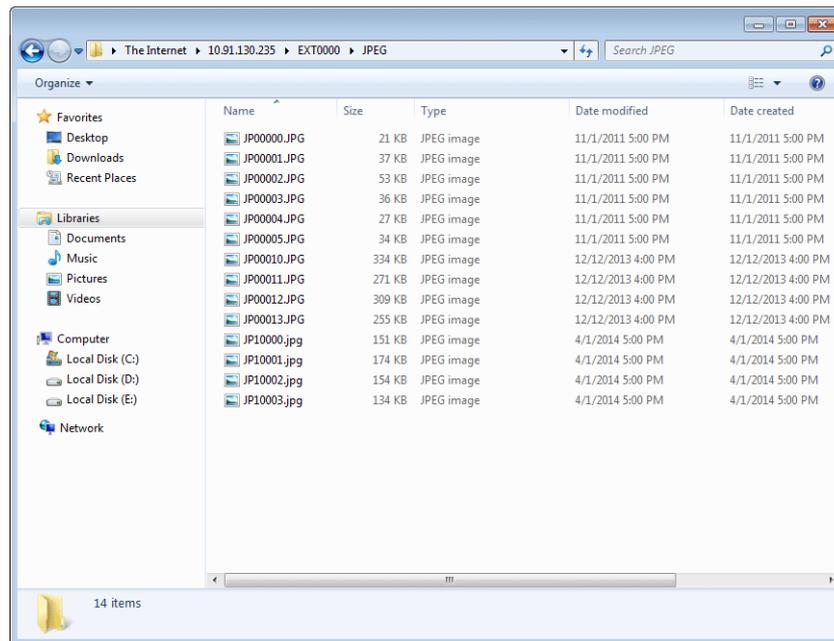


- * When using Explorer or Internet Explorer,
specify "ftp://user name:password@MONITOUCH IP address".
User authentication may not be successful if only "ftp://MONITOUCH IP address" is entered.

3. The Explorer window is displayed as follows. Login is complete.

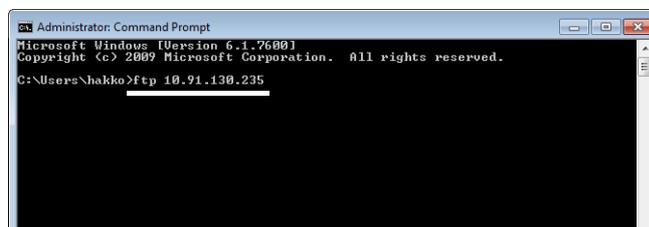


4. Explorer allows the contents of the storage device inserted into the V9 series unit to be displayed.

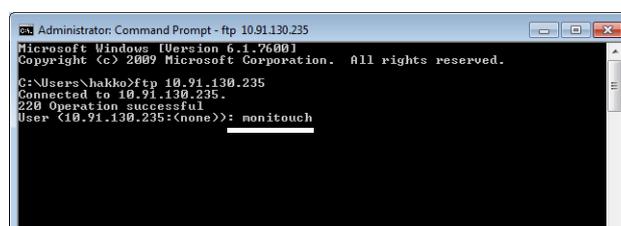


Command Prompt

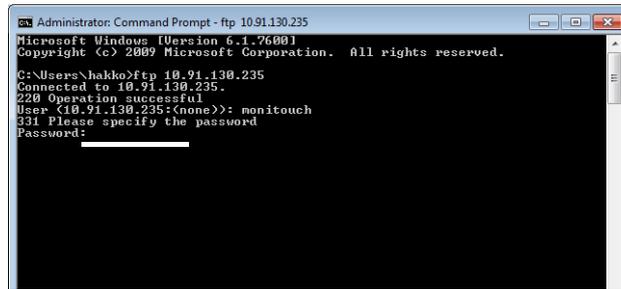
- Click [Start] → [Programs] → [Accessories] → [Command Prompt].
A [Command Prompt] screen starts.
- Enter the FTP command.
Enter "ftp", a one-byte space, the IP address of the V9 series unit, and then press the [Enter] key.



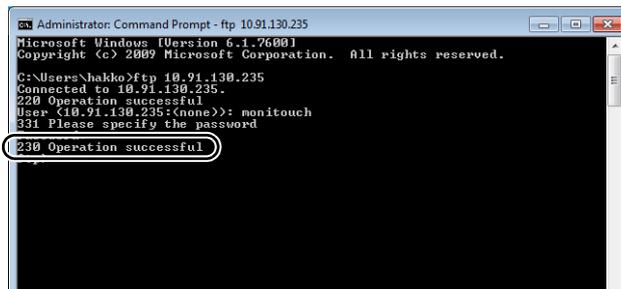
- The following message appears.
Enter the user name specified in the [FTP Server Setting] window of the screen program and then press the [Enter] key.



4. The following message appears.
Enter the password specified in the [FTP Server Setting] window of the screen program and then press the [Enter] key.
(The password is not shown on the screen.)

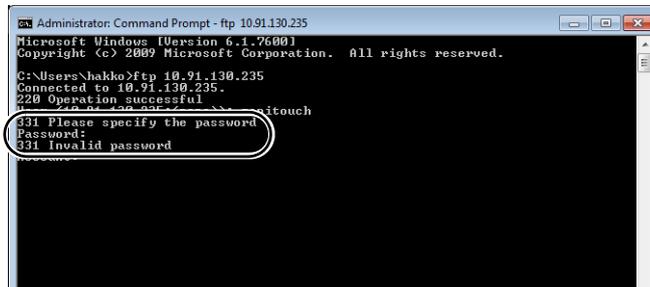


5. The following message appears. This message indicates that login is complete.

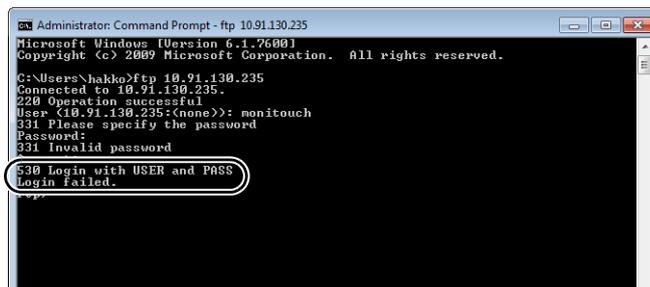


Causes of login failure

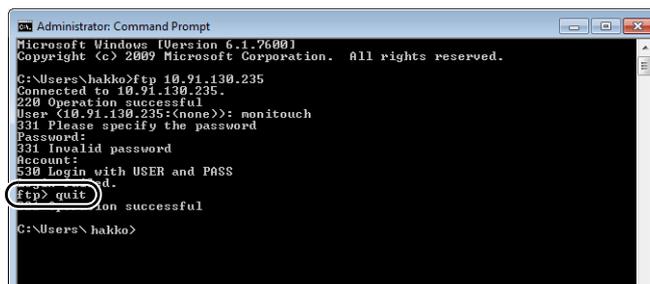
- If the wrong password is entered, the following message is displayed.



If correct commands are entered after the occurrence of an error, the error message will continue to be output.



In order to proceed, execute the quit command to disconnect the client once and then enter the correct command.



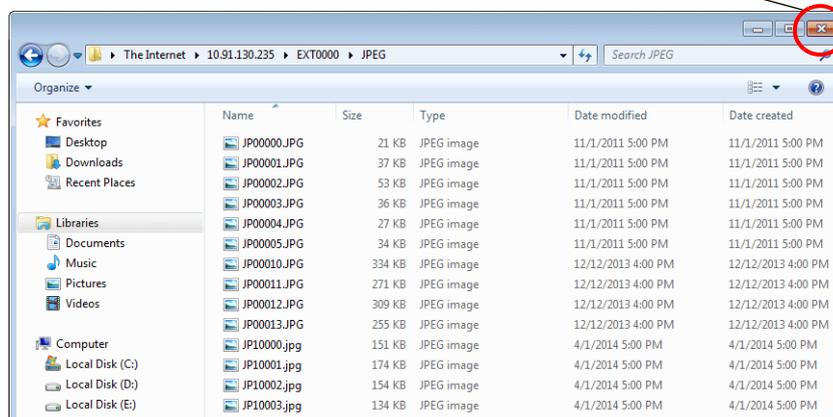
6.9.6 Log Out

This section explains the log out procedure and how to operate the FTP tools.

Explorer (or Internet Explorer)

To log out when using Explorer, close the Explorer window.

Click the close button to log out.



Command Prompt

1. With the client logged into the FTP server, enter "quit" and press the [Enter] key.

```
Administrator: Command Prompt
ftp> ls
220 Operation successful
150 Directory listing
.
JP00000.JPG
JP00001.JPG
JP00002.JPG
JP00003.JPG
JP00004.JPG
JP00005.JPG
JP00010.JPG
JP00011.JPG
JP00012.JPG
JP00013.JPG
JP10000.jpg
JP10001.jpg
JP10002.jpg
JP10003.jpg
226 Operation successful
ftp: 189 bytes received in 0.13Seconds 1.51Kbytes/sec.
ftp> quit
```

2. The following message appears. Logout is complete.

```
Administrator: Command Prompt
ftp> ls
220 Operation successful
150 Directory listing
.
JP00000.JPG
JP00001.JPG
JP00002.JPG
JP00003.JPG
JP00004.JPG
JP00005.JPG
JP00010.JPG
JP00011.JPG
JP00012.JPG
JP00013.JPG
JP10000.jpg
JP10001.jpg
JP10002.jpg
JP10003.jpg
226 Operation successful
ftp: 189 bytes received in 0.13Seconds 1.51Kbytes/sec.
221 Operation successful
C:\Users\hakko>
```

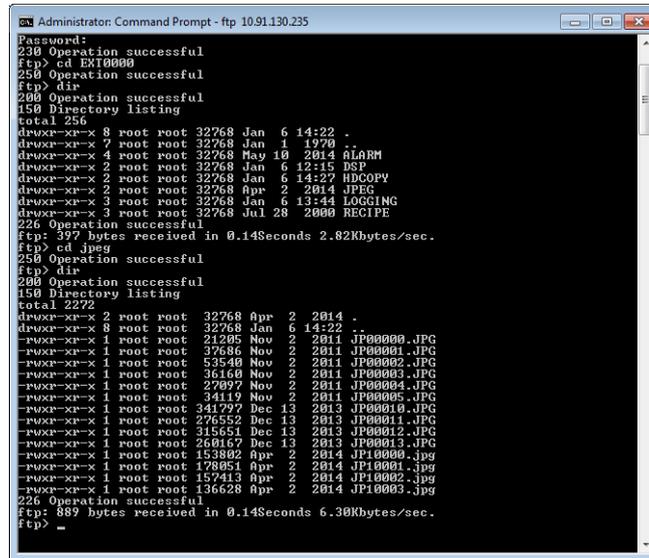
6.9.7 Operation Examples

This section provides examples of executing commands in the Command Prompt.

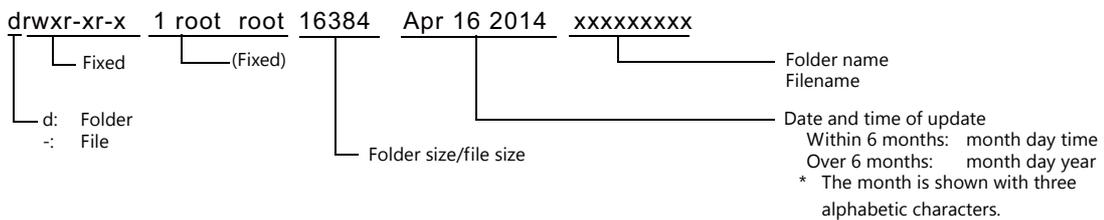
Displaying File and Folder Lists

“dir” command

This command is used to display a list of file and folder information that includes properties, sizes, dates and times of update, and names of files and folders.

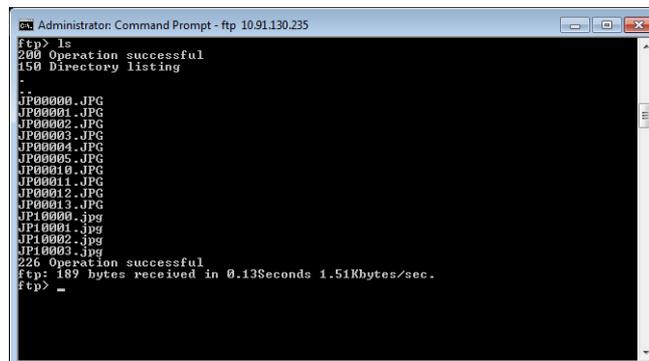


- List details



“ls” command

This command is used to display the names of files and folders.



Reading and Writing Files

“get” command (reading)

This command is used to retrieve files from the storage device and transfer them to the PC. When using the Command Prompt, the file is transferred to the specified folder.

In this example, the file is transferred to this location.

```

Administrator: Command Prompt - ftp 10.91.130.235
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\hakko>ftp 10.91.130.235
220 Operation successful
User (10.91.130.235:(none)): monitouch
331 Please specify the password
Password:
ftp>get C:\EXT0000\JPEG\JP10000.jpg
200
150 Opening BINARY connection for C:\EXT0000\JPEG\JP10000.jpg (153802 bytes)
226 Operation successful
ftp: 153802 bytes received in 0.11Seconds 10253.47Kbytes/sec.
ftp>
  
```

“get” command:
get _ (file to be read)

“put” command (writing)

This command is used to send files from the PC to the storage device.

```

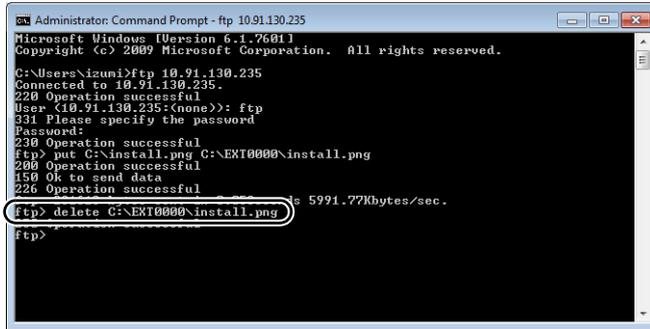
Administrator: Command Prompt - ftp 10.91.130.235
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\hakko>ftp 10.91.130.235
Connected to 10.91.130.235.
220 Operation successful
User (10.91.130.235:(none)): monitouch
331 Please specify the password
Password:
ftp>put C:\install.png C:\EXT0000\install.png
200
150 Ok to send data
226 Operation successful
ftp: 28163 bytes sent in 0.05Seconds 5991.77Kbytes/sec.
ftp>
  
```

“put” command:
put _ (file on the PC (example: on drive C)) _ (file on the storage device (drive C))

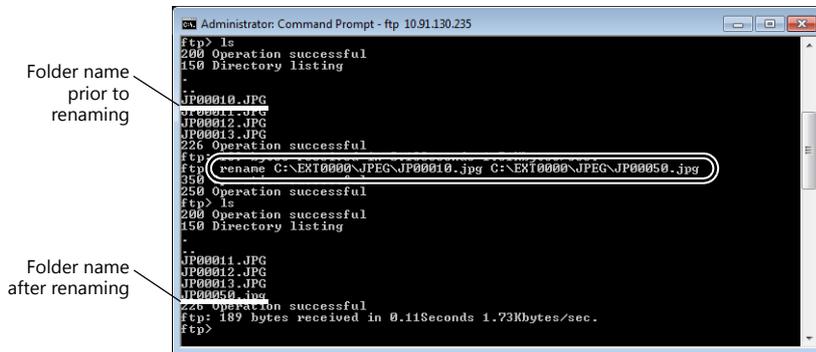
Deleting a file

“delete” command



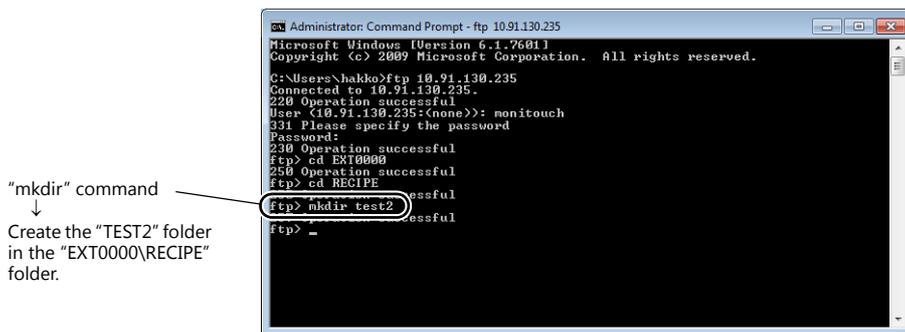
Renaming a File/Folder

“rename” command



Creating a folder

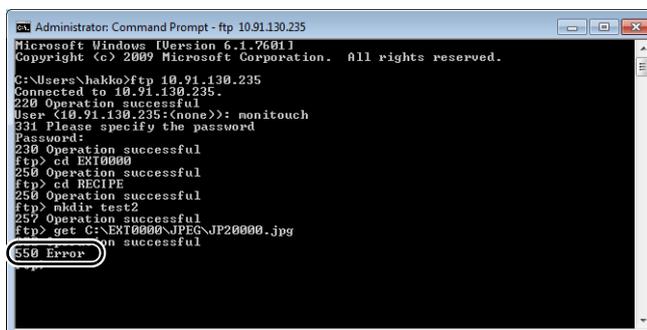
“mkdir” command



6.9.8 Error Display

If an error occurs when accessing the FTP server, the FTP client displays the error message.

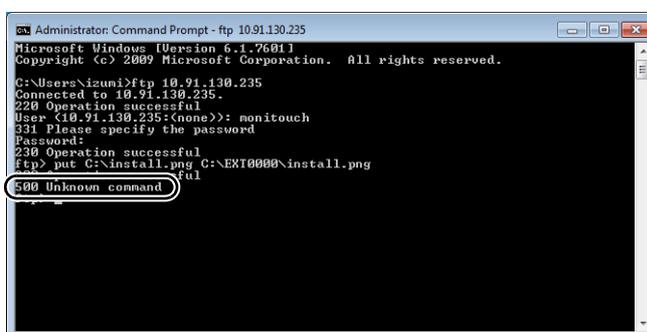
Example 1: When attempting to read a file that does not exist



```
Administrator: Command Prompt - ftp 10.91.130.235
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\hakko>ftp 10.91.130.235
Connected to 10.91.130.235.
220 Operation successful
User (10.91.130.235:(none)): monitouch
331 Please specify the password
Password:
230 Operation successful
ftp> cd EXT0000
250 Operation successful
ftp> cd RECIPE
250 Operation successful
ftp> mkdir test2
257 Operation successful
ftp> get C:\EXT0000\JPEG\JP20000.jpg
550 Error
```

Example 2: When attempting to write to a write-protected file_



```
Administrator: Command Prompt - ftp 10.91.130.235
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\izuni>ftp 10.91.130.235
Connected to 10.91.130.235.
220 Operation successful
User (10.91.130.235:(none)): monitouch
331 Please specify the password
Password:
230 Operation successful
ftp> put C:\install.png C:\EXT0000\install.png
500 Unknown command
```

6.9.9 Checking the Connection

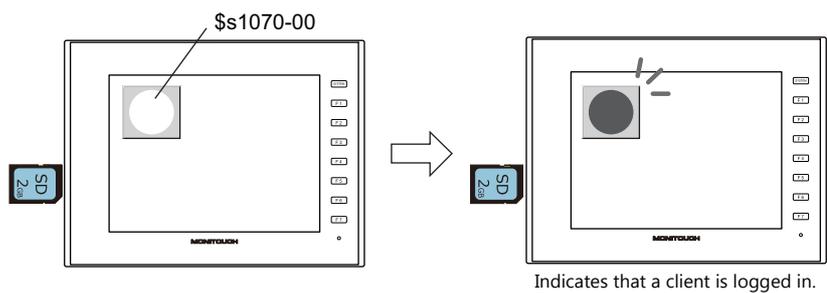
System Device Memory (\$s)

The following describes the system device memory associated with the FTP server.

Addresses	Description	Remarks																																				
\$s1070	<p>Storage of FTP information</p> <table border="1" style="margin-left: 20px;"> <tr> <td style="text-align: right;">MSB</td> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>09</td><td>08</td><td>07</td><td>06</td><td>05</td><td>04</td><td>03</td><td>02</td><td>01</td><td>00</td> <td style="text-align: left;">LSB</td> </tr> <tr> <td></td> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td></td><td></td> <td></td> </tr> </table> <p style="margin-left: 20px;">System reserved (setting: 0)</p> <p style="margin-left: 20px;">FTP client 0: Command not being executed 1: Command being executed</p> <p style="margin-left: 20px;">FTP client 0: Logged off 1: Logged in</p> <p>* If two or more FTP clients log in to the FTP server, the data stored in the system memory is based on the status of all these FTP clients. (Even if only one FTP client is executing a command, bit 1 is set to ON.)</p>	MSB	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	LSB		0	0	0	0	0	0	0	0	0	0	0	0	0	0				← V
MSB	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	LSB																					
	0	0	0	0	0	0	0	0	0	0	0	0	0	0																								
\$s1071	Number of FTP clients that are logged into the server (maximum of 3 clients)	← V																																				
\$s1072	<p>Forced disconnection of FTP connection</p> <table border="1" style="margin-left: 20px;"> <tr> <td style="text-align: right;">MSB</td> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>09</td><td>08</td><td>07</td><td>06</td><td>05</td><td>04</td><td>03</td><td>02</td><td>01</td><td>00</td> <td style="text-align: left;">LSB</td> </tr> <tr> <td></td> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td></td> <td></td> </tr> </table> <p style="margin-left: 20px;">System reserved (setting: 0)</p> <p style="margin-left: 20px;">Connection to FTP client 0 → 1: Forcibly disconnected</p>	MSB	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	LSB		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			← V
MSB	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	LSB																					
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																							

Checking the Connection State

Create a lamp to which the internal device memory \$s1070-00 is assigned, and place it on the screen. A lit lamp indicates that a client is logged in, i.e. a connection is established.



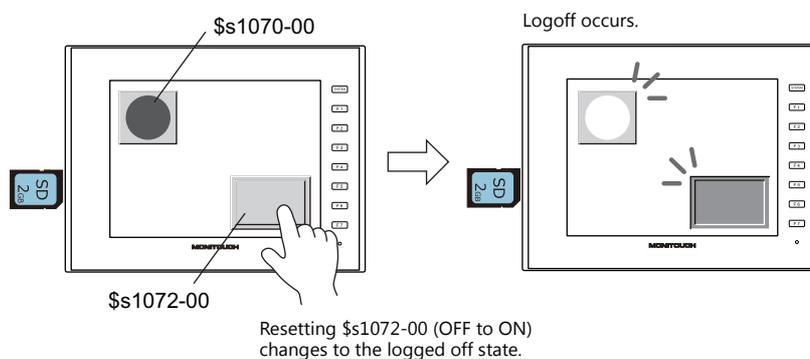
Closing the Connection

Automatic disconnection

If no command is received from the FTP client within the time period specified for [Input Supervisory Period] in the [FTP Server Setting] window (click [System Setting] → [Ethernet Communication] → [FTP Server]), the V9 series unit automatically disconnects the client.

Manual disconnection from the V9 series unit

The connection with the FTP client can be forcibly disconnected by resetting (OFF to ON) bit 0 of \$s1072 on the V9 series unit.



Disconnection from FTP client

The FTP client is disconnected from the V9 series unit when the FTP client logs out. For details, refer to "6.9.6 Log Out" page 6-53.

6.9.10 Restrictions

Number of Simultaneous FTP Client Connections

A maximum of three FTP clients can be connected to one V9 series unit at the same time.

Note that requests from multiple FTP clients cannot be processed at the same time. They are processed one by one. Therefore, while an FTP client is transferring a large-size file, another client cannot transfer a file and must wait until the current file transfer is completed.

File Property Changes

Changing file properties (such as changing write permissions) is prohibited.

6.9.11 Notes

Notes on FTP Server System Design

1. In the case when an FTP client writes a recipe file to the storage device inserted into the V9 series unit, the recipe file from the FTP client and the recipe in operation on the V9 series unit must be in the same format. In the case when a recipe file is written from a remote location, make sure that the same format is used at the target location in advance.
2. Before using an FTP client tool, read the provided documentation to understand the functions and operational procedures, and also conduct a trial operation. The V9 series (FTP server) may not support some functions depending on the type of the FTP client tool used.

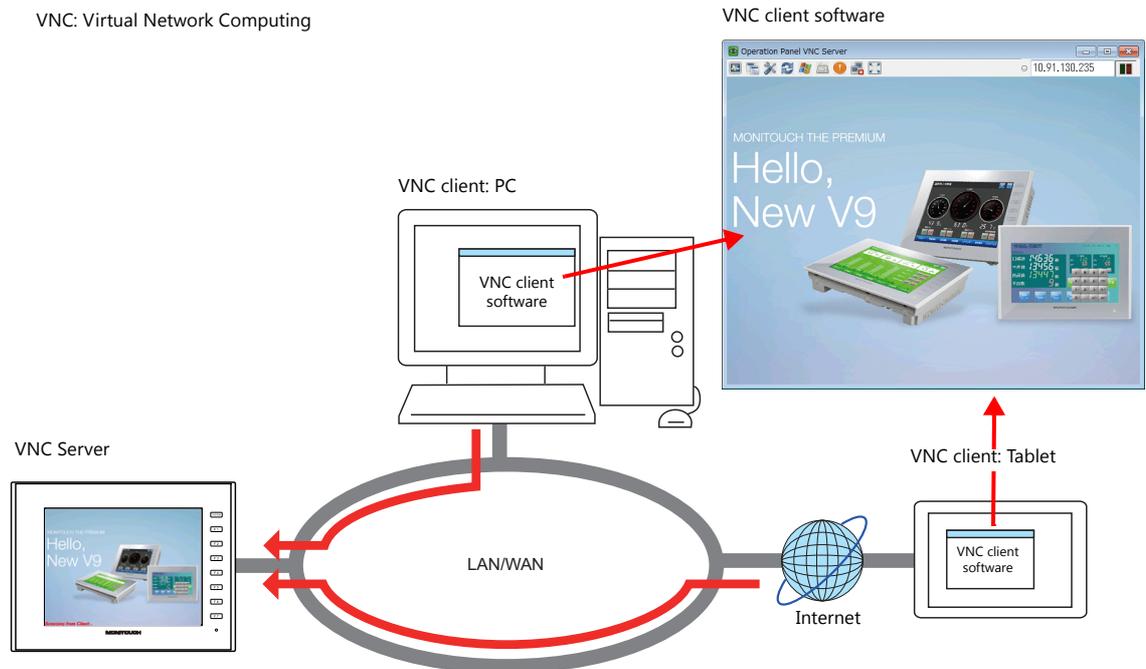
Notes on File Transfer

1. If no command is sent from the FTP client within the time period specified for [Input Supervisory Period] in the [FTP Server Setting] window, the connection between the FTP server and FTP client will be disconnected automatically.
2. While the V9 series unit is communicating with the FTP client, changing the V9 series unit to local mode will disconnect them.
3. While the V9 series unit is accessing a file, do not allow the FTP client to write to or delete the same file.
If the same file accessed by the V9 series unit is written to or deleted, a malfunction will occur. Deleting a file from the storage device, even when the file is not being accessed by the V9 series unit, will cause a file reading error the next time the V9 series unit attempts to access the file.
Basically, do not execute the writing and deleting commands with respect to any files relevant to V9 series unit operation.
4. When a file on the storage device has been overwritten via the FTP server, check that the data in the file is correct.
If writing to the file ends in an error, the file will be deleted from the storage device. In the event of such a deletion, repeat writing from the FTP client.
5. If the FTP client is down, wait until the time for [Input Supervisory Period] elapses and then retry login.
6. While the FTP client is accessing a file on the storage device inserted into the V9 series unit, do not turn off power to the V9 series unit. Doing so may corrupt data on the storage device.
7. If the V9 series unit is reset or turned off while connected to an FTP client, the next action that the FTP client takes depends on the specifications of the FTP client tool.
With this in mind, select an FTP client tool that can detect when an FTP server goes down and can terminate safely in such a case.
8. Depending on the type of FTP client tool, there may be a time stamp mismatches between files on the storage device and the PC. If such a mismatch is found, check the configuration of the FTP client tool.

6.10 VNC Server

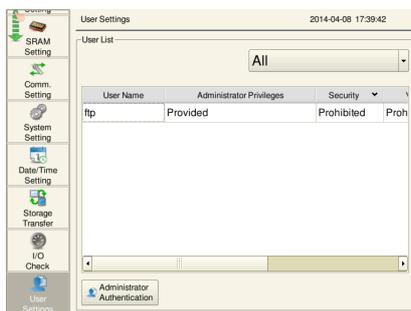
6.10.1 Overview

- The V9 series unit supports the VNC server function. This means that the screen of the V9 series unit can be monitored and remotely operated with ease from a PC on the network. Settings can also be configured to allow monitoring only.
 - The V9 series unit to be remotely operated is referred to as the “server” and the PC that performs remote operations is referred to as the “client”.
- In addition to PCs, smartphones and tablets can also be used as clients.
- Simultaneous access from multiple clients is prohibited. All connections are 1:1.



- VNC client software (VNC Viewer) must be installed.
 - The V9 series employs password authentication. When a client accesses a V9 series unit, a user name and password must be entered.
- User name and password registration is performed on the V9 series unit in Local mode on the [User Settings] screen.

V9 [User Settings] screen



VNC client authentication screen



- Remote operations on the display of the V9 series unit can be performed on all RUN, Local, and error screens.
- If a network camera is connected to the V9 series unit, the network camera image can also be displayed on the VNC client.

6.10.2 Specifications

V9 Series Unit (Server)

Item	Description	Remarks
Port used	Built-in LAN port	
Port number	5900	Fixed
Number of client connections	1	If the server receives connection requests from multiple clients, the currently connected client is disconnected and the client that made a subsequent request is connected.
Authentication method	Password authentication	
Number of registered users	A maximum of 32 users	

Restrictions

- The connection between the V9 series unit and VNC client is 1:1.
If the server receives connection requests from multiple clients, the currently connected client is disconnected the client that made a subsequent request is connected.
- The following operations cannot be performed on the V9 series unit when a VNC client is connected and permitted to perform remote operations.
 - Local mode → [System Setting] → [Buzzer Setting]
 - Local mode → [System Setting] → [Backlight Setting]
 - Local mode → [I/O Check] → [Touch switches and media] → [Test] → [Correct]
- The user authentication screen is displayed in the interface language of the V9 series unit.

6.10.3 Setting Procedure

1. Connect the V9 series unit and the VNC client device to the network.
For details on VNC client device settings, refer to the relevant device manual.
 ["V9 Series Unit IP Address Settings" page 6-2](#)
2. V9 series unit settings
Register a user name and password on the [User Settings] screen in Local mode.
 ["6.10.4 V9 Series Unit Settings and Operation" page 6-63](#)
3. VNC client settings
 - Install the VNC Viewer software.
 ["6.10.5 VNC Client Settings/Operations" page 6-66](#)
4. Start the VNC Viewer and perform remote monitoring and operation.
 ["Connecting to the VNC Server" page 6-66](#)

6.10.4 V9 Series Unit Settings and Operation

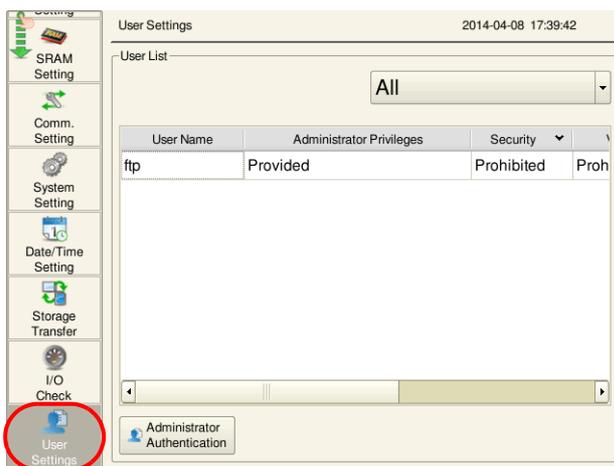
User Settings

Register the user name and password for accessing the VNC server on the [User Settings] screen in Local mode.

1. Press the [SYSTEM] switch on the unit to display the system menu at the top of the screen.



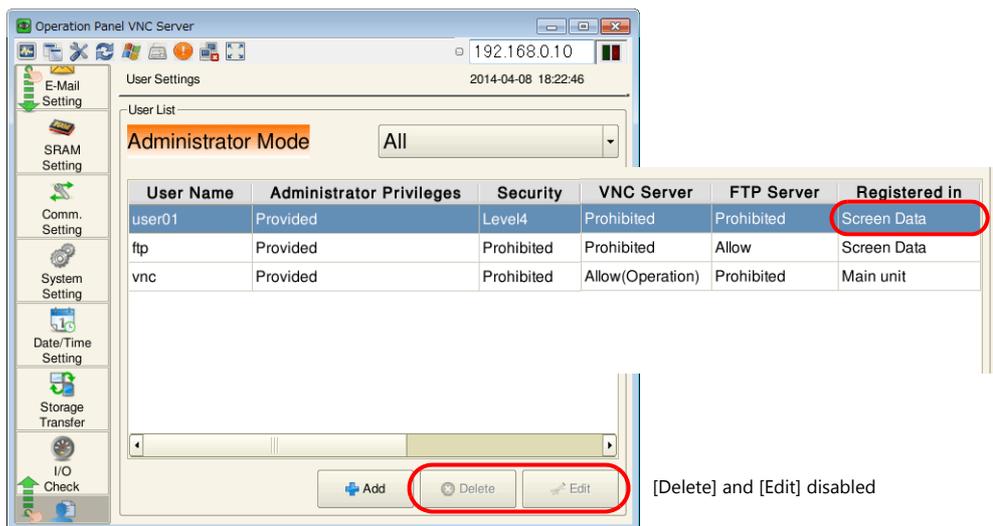
2. Press the [Local] switch on the system menu. The Local mode screen is displayed on the unit.
3. Press the [User Settings] menu icon to display the [User Settings] screen. A list of registered users is displayed.



- * This user settings screen is the same for [Security], [VNC Server], and [FTP Server].
Log in from the VNC Viewer using a user name and password that are allowed by the VNC server.

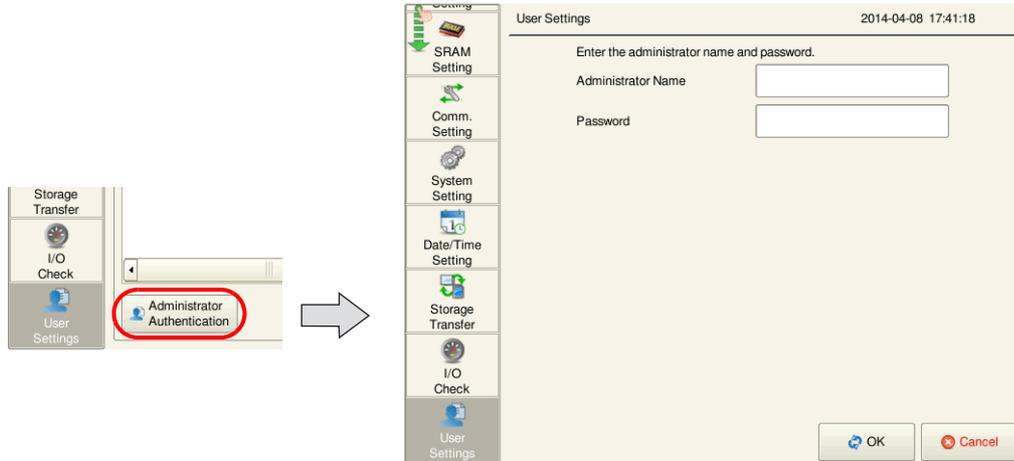


The user name for the security and FTP server can also be set in the screen program. The user ID set in the screen program always has administrator privileges and it cannot be edited or deleted on the [User Settings] screen of the V9 series unit.

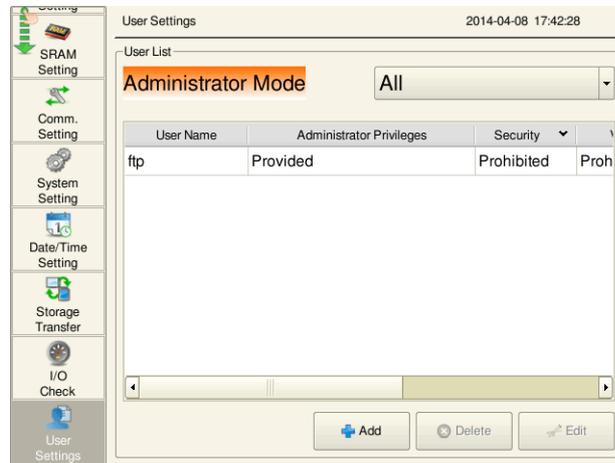


[Delete] and [Edit] disabled

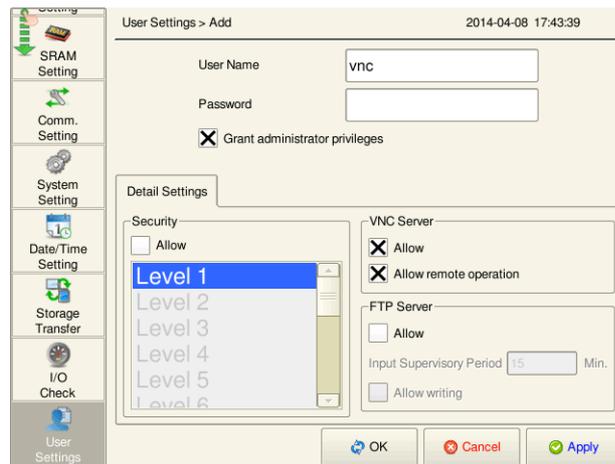
4. Press the [Administrator Authentication] switch. The password entry screen is displayed.



5. Enter an administrator-level user name and password. If the entries are correct, the user list in administrator mode is displayed. This mode allows adding, editing, and deletion operations.



6. Press the [+ Add] switch to display the add user screen. Configure the following settings.



Item		Description
User Name		Register a user name. 16 one-byte alphanumeric characters A maximum of 8 characters for a user name common with the security function.
Password		Register a password. 16 one-byte alphanumeric characters A maximum of 8 characters for a password common with the security function.
Grant administrator privileges		Select whether to grant administrator privileges to the user. With privileges: Users can be added, edited, and deleted in the list. Without privileges: Users cannot be added, edited, or deleted in the list.
VNC Server	Allow	Allow access from VNC clients.
	Allow remote operation	Allow operations from VNC clients. When remote operations are not allowed, only monitoring can be performed.

7. Press [OK] to complete registration. The display returns to the [User List (Administrator Mode)] screen.
 8. Return to step 5 to perform another registration.
- If registration is complete, switch to another screen using the relevant menu icon.

Status Bar

The connection state of VNC clients can be checked on the status bar. *1
 This status bar can also be used to forcibly disconnect VNC clients from the V9 series unit. *2



*1 The status of the VNC client is also output to system device memory (\$s).

Address	Description	Remarks
\$s1674	VNC client status 0: Disconnected 1: Connected	← V

*2 When "automatic reconnect" is enabled in the settings of the VNC Viewer software, even if a forced disconnection is performed by the V9 series unit, the user authentication screen is displayed and cannot be dismissed. In this case, close the VNC Viewer software and change the settings.

Status bar details

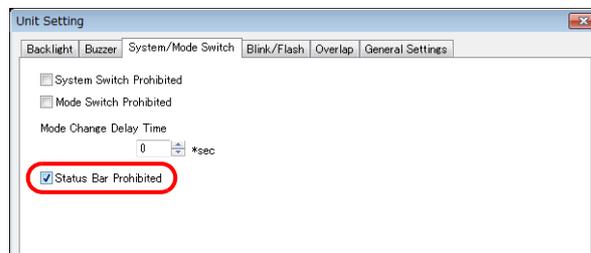
The status bar allows checking of VNC, LAN, and PLC communication states.

- Display method
Press the [SYSTEM] switch to display the status bar at the bottom right of the screen.
- Constant display
The status bar is automatically hidden after 15 seconds. Press the drawing pin icon to display the status bar at all times.

Drawing pin icon



- Prohibiting status bar usage
The status bar cannot be displayed in RUN mode when the [Status Bar Prohibited] checkbox is selected on the [System Setting] → [Unit Setting] → [Switch/Mode Switch] tab window. In this case, press the [SYSTEM] switch in Local mode to display the status bar.



For details, refer to the V9 Series Troubleshooting/Maintenance Manual.

6.10.5 VNC Client Settings/Operations

VNC Viewer Software

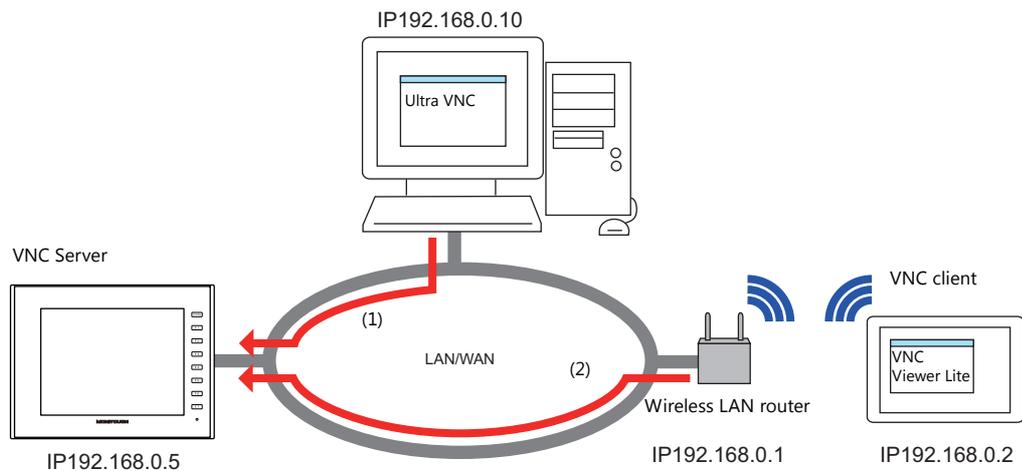
The VNC Viewer software must be installed on the VNC client in order to perform remote monitoring and operation of the V9 series unit from the VNC client. Install this software in advance.

Software	OS	Remarks
Ultra VNC	Windows 2000 / XP / Server 2003 / Vista / 7 / 8	Free software
Tight VNC	Windows XP(32bit)	
Vnc Viewer Lite	Android	
RemoteToGo		
VNC Viewer	iOS	
VNC Lite		
abtoVNC Viewer		
Jump Desktop		

- * For details on the system requirements of each software, visit the software’s website. The method for obtaining the software differs depending on the client device. Obtain the software by referencing the specifications of the relevant device.
- * Communication may be unstable depending on the OS version of the client, VNC Viewer version, and operating environment. Always perform tests in the usage environment.

Connecting to the VNC Server

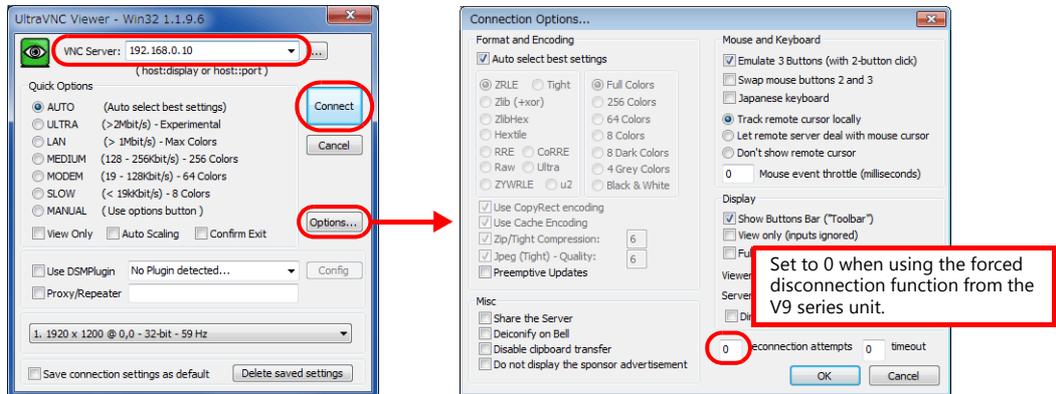
This section explains connecting to the VNC server with two examples: (1) connecting from a PC on the network using Ultra VNC, and (2) connecting from an Android tablet using VNC Viewer Lite.



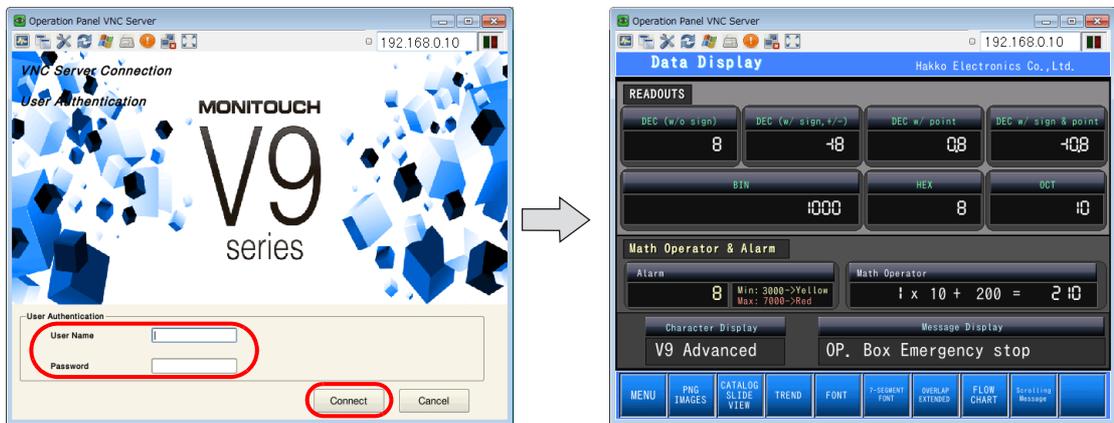
(1) Ultra VNC

Install Ultra VNC on the PC and connect the V9 series unit and PC to the network in advance.

1. Start the Ultra VNC application via Windows Start menu → [UltraVNC] → [UltraVNC Viewer].
2. Enter the IP address of the V9 series unit into the [VNC Server] field and click [Connect].

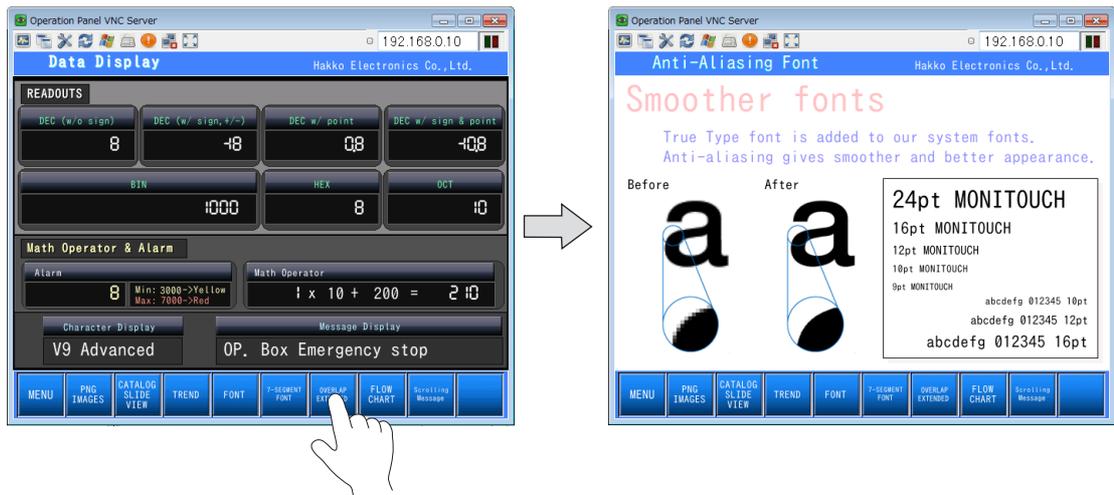


3. Enter a user name and password on the user authentication screen and click [Connect]. The VNC viewer screen is displayed.



4. Operating the VNC viewer screen will change the display on the V9 series unit as well.

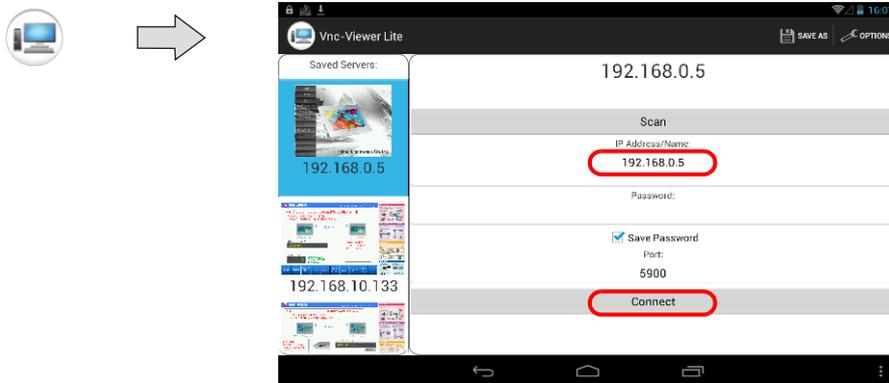
* If remote operations are not allowed, operations cannot be performed. The viewer screen changes to reflect operations performed on the V9 series unit.



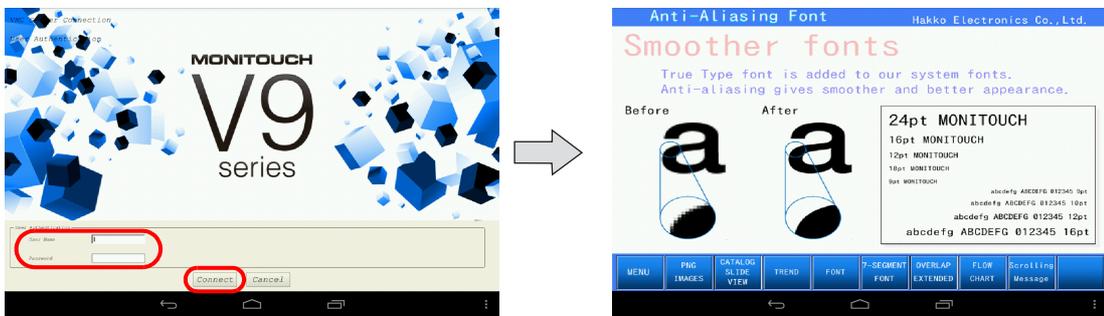
(2) VNC Viewer Lite

Install VNC Viewer Lite, configure Wi-Fi settings, and connect the V9 series unit and tablet to the network.

1. Start VNC Viewer Lite.
2. Enter the IP address of the V9 series unit and tap [Connect].

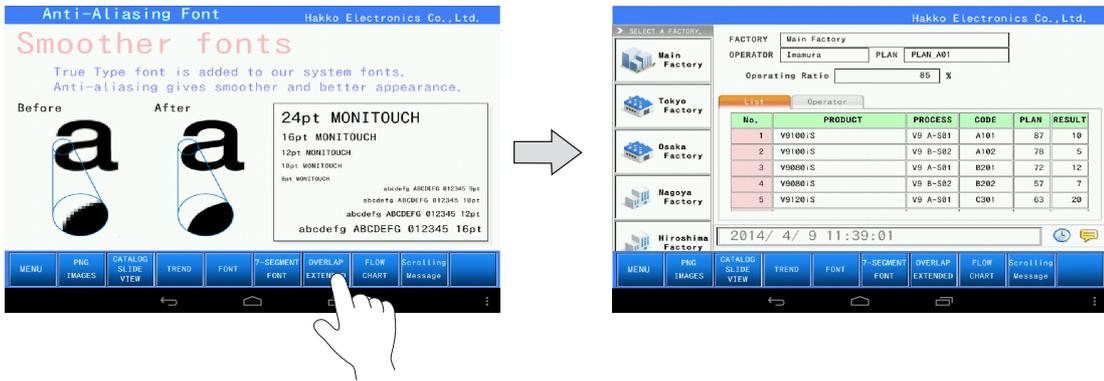


3. Enter a user name and password on the user authentication screen and click [Connect]. The VNC viewer screen is displayed.



4. Operating the VNC viewer screen will change the display on the V9 series unit as well.

* If remote operations are not allowed, operations cannot be performed. The viewer screen changes to reflect operations performed on the V9 series unit.



Keyboard Entry

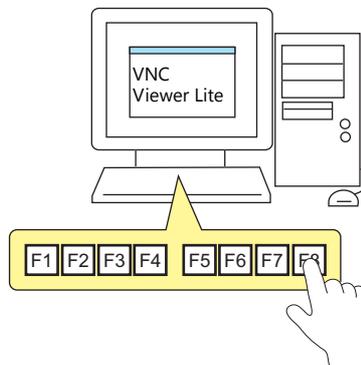
If remote operations are permitted from the VNC client, the following keyboard entry can be performed in addition to operations on the viewer screen.

- Entry screens: numerical and text entry
- Text boxes: numerical and text entry
- Function switch operation

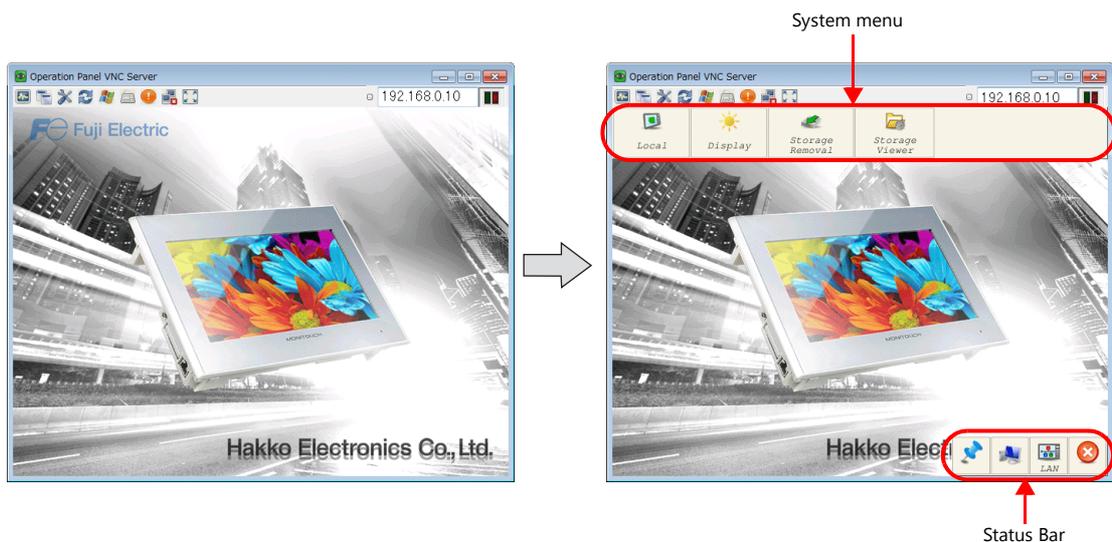
VNC Client Keyboard	V9 Function Switch
F1	F1
F2	F2
F3	F3
F4	F4
F5	F5
F6	F6
F7	F7
F8	SYSTEM

Operation example

1. With the remote screen displayed using VNC Viewer Lite, press [F8] on the keyboard.



2. The system menu and the status bar are displayed.
This is the same operation as pressing the [SYSTEM] switch on the V9 series unit.

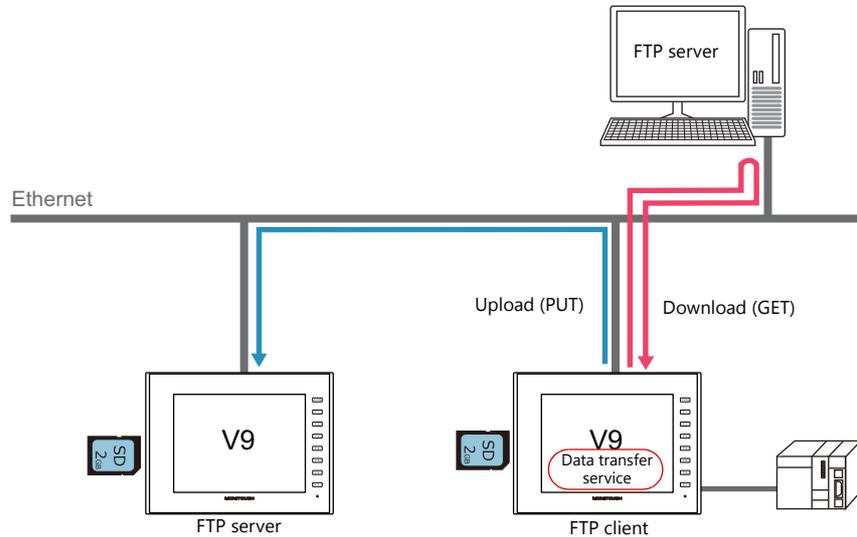


6.11 Data Transfer Service

6.11.1 Overview

Data Transfer Service

This function is for uploading (PUT) files and folders saved to the storage device connected to a V9 series unit, and downloading (GET) files from the server by accessing the server from the client V9 series unit over Ethernet. The V9 series can serve as an FTP client.



Since uploading and downloading is performed as a background operation, screen operations are available during the transfer.

6.11.2 Specifications

V9 Client Specifications

Item	Specifications	Remarks
V9 series	Available with built-in LAN ports (LAN, LAN2, WLAN)	Not available with CUR-03 communication unit.
Protocol	TCP/IP	
Number of simultaneous connections to server	1	Server connection is automatically established at transfer execution and automatically disconnected when complete.
Data size	Unlimited (within the storage capacity)	If data size is large, transfer will take time.
Number of data	Unlimited (within the storage capacity)	
Data hierarchy	No hierarchy limitaiton (Path: within 256 alphanumeric)	
Operational requirement	Operable in RUN mode only	

Compatible FTP Servers

Tools and Functions	Equipment/OS
FTP server function	V9 series, V8i series
Microsoft Internet Information Services (IIS)	OS: Windows 7

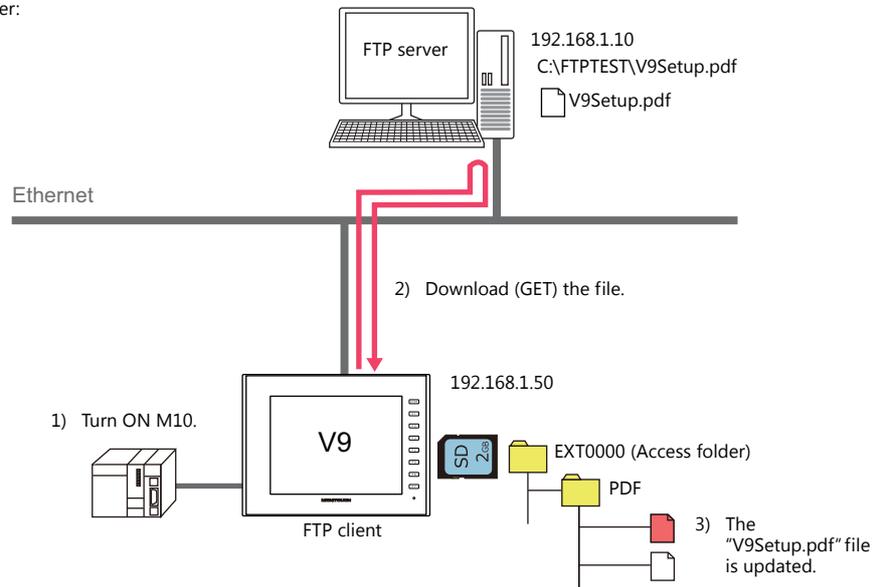
6.11.3 Setting Example 1: When Server is a PC

This section describes the settings for when the server is a computer.

File-based Transfer

The following is the procedure for updating the "V9Setup.pdf" file by downloading it (GET) from the server.

Transfer execution trigger:
M10 is turned ON



Server Settings

Refer to the manual of the tool to use.

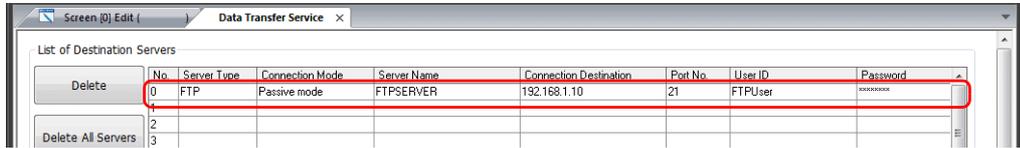
Example: Microsoft Internet Information Services (IIS)

User name	FTPUser
Password	ftp123
IP Address	192.168.1.10
Port	21 (default)
Server directory	C:\FTPTEST

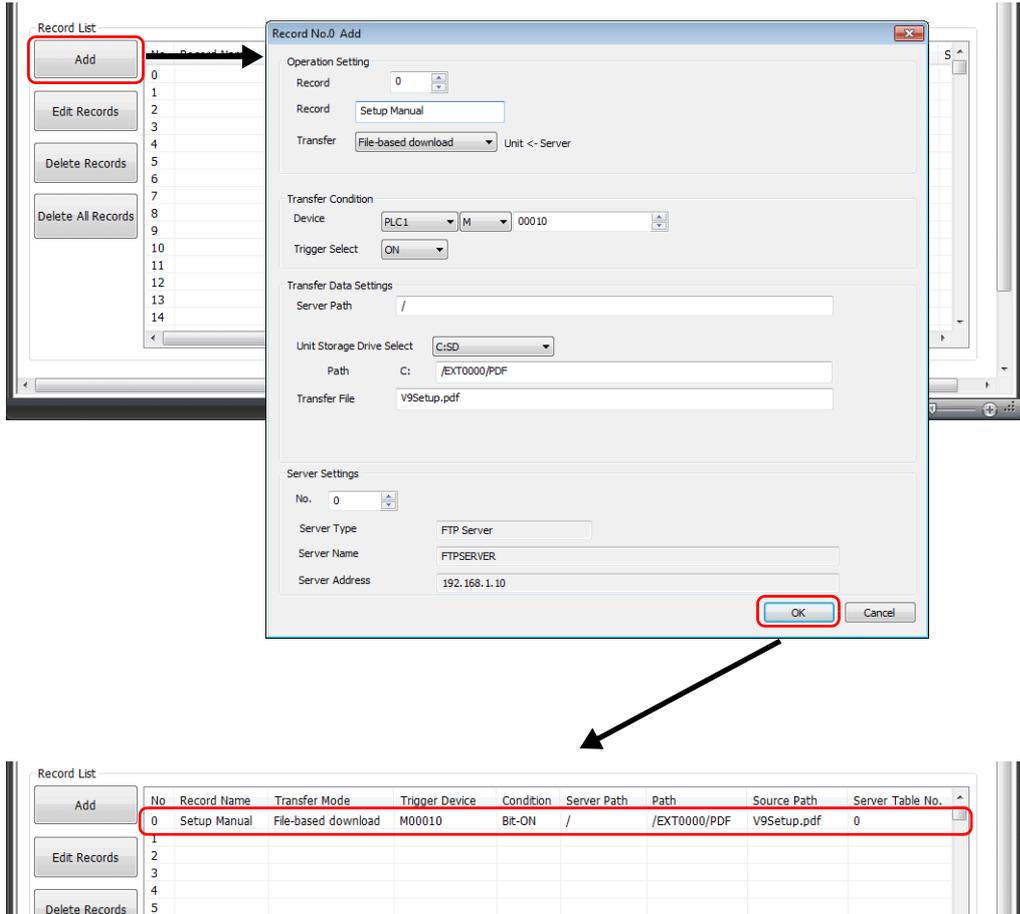
For details, refer to "Server: Computer etc." page 6-82.

Client Settings (V9)

1. Click [System Setting] → [Data transfer server]. An area transfer service tab window is displayed.
2. Configure the following settings.
Set the same values as the server settings for [Connection Destination] (IP address), [Port No.], [User ID] (user name) and [Password].



3. Configure the following settings.



4. Click [OK].
This completes the necessary settings.

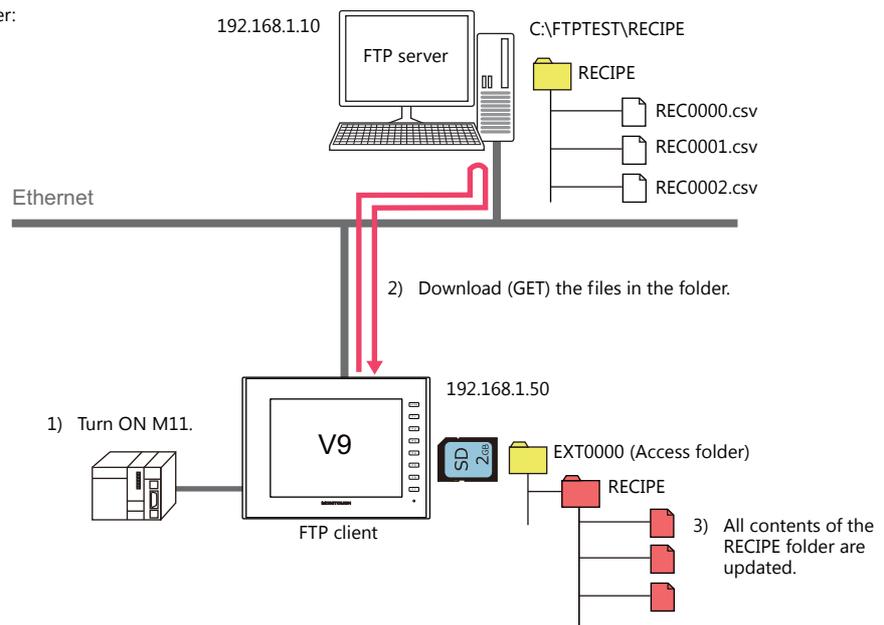
Unit Operation

Downloading (GET) starts when the M10 bit turns ON.
 The "V9Setup.pdf" in the V9 series unit's PDF folder is updated by overwriting.

Folder-based Transfer

The following is the procedure for updating the "RECIPE" folder by downloading (GET) it from the server.

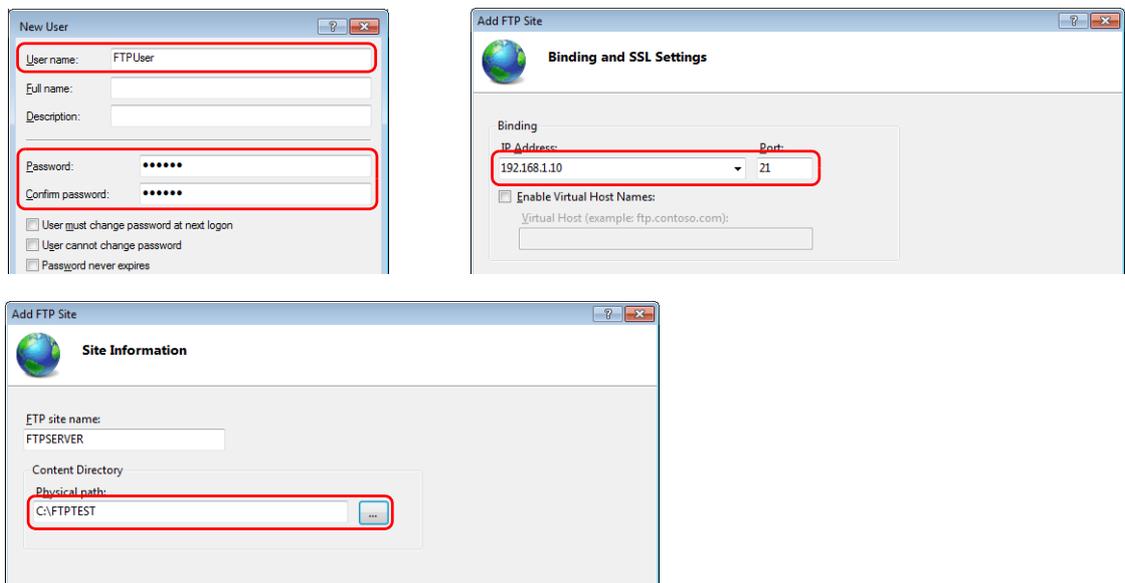
Transfer execution trigger:
M11 is turned ON



Server Settings

Refer to the manual of the tool to use.

Example: Microsoft Internet Information Services (IIS)

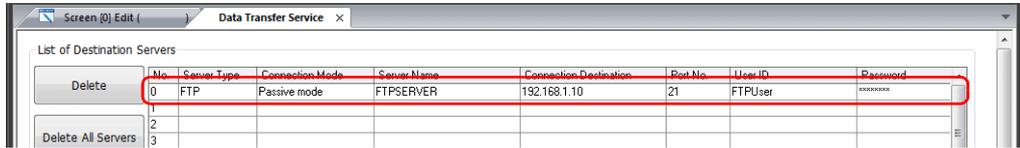


User name	FTPUser
Password	ftp123
IP Address	192.168.1.10
Port	21 (default)
Server directory	C:\FTPTEST

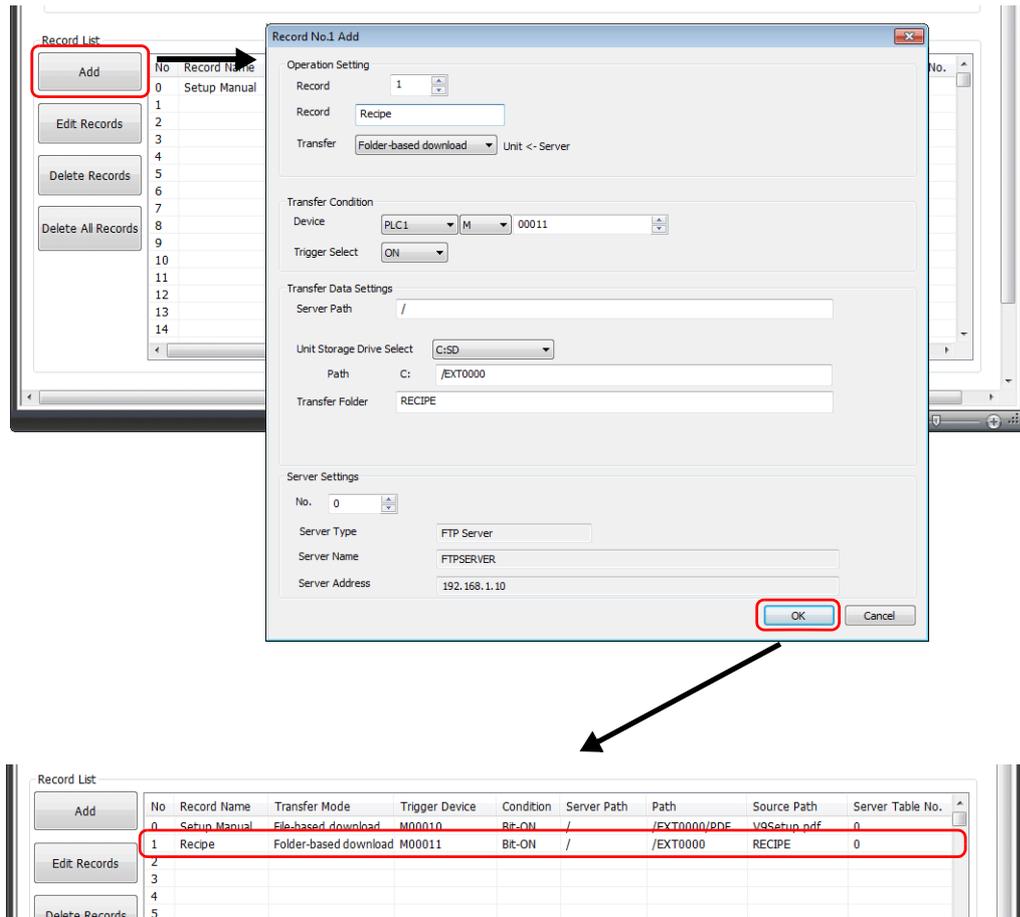
For details, refer to "Server: Computer etc." page 6-82.

Client Settings (V9)

1. Click [System Setting] → [Data transfer server]. An area transfer service tab window is displayed.
2. Configure the following settings.
Set the same values as the server settings for [Connection Destination] (IP address), [Port No.], [User ID] (user name) and [Password].



3. Configure the following settings.



4. Click [OK].
This completes the necessary settings.

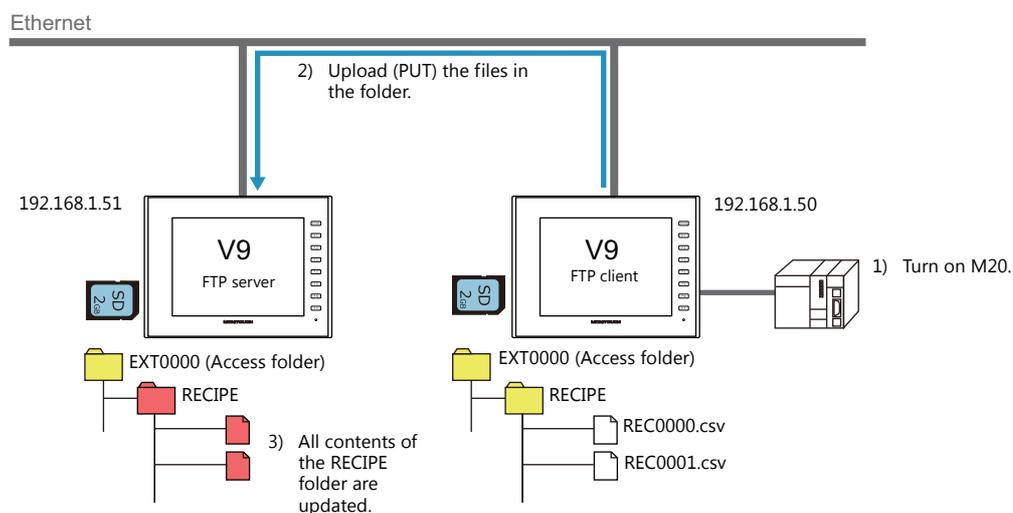
Unit Operation

Downloading (GET) starts when the M11 bit turns ON.
The "RECIPE" folder in the V9 series unit is updated by overwriting with the "RECIPE" folder on the server.

6.11.4 Setting Example 2: When Server is a V9 Unit

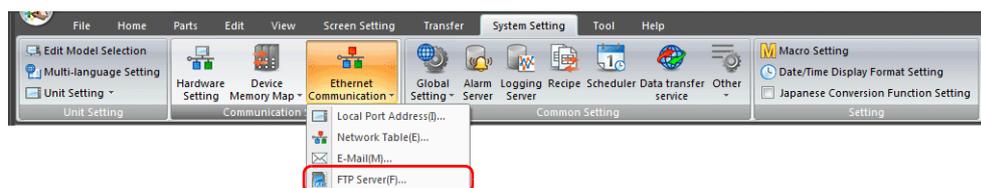
The following is the procedure for updating the "RECIPE" folder on the server by uploading (PUT) from an SD card.

Transfer execution trigger: M20 is turned ON

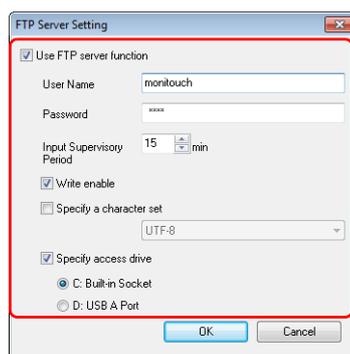


Server Settings (V9)

1. Click [System Setting] → [Ethernet Communication] → [FTP Server].



2. The [FTP Server Setting] window is displayed. Configure the following settings.



Use FTP server function ^{*1}	Selected
User name	monitouch ^{*2}
Password	9999 ^{*2}
Input Supervisory Period	15 min
Write enable	Selected
Specify access drive	Selected C: Built-in Socket

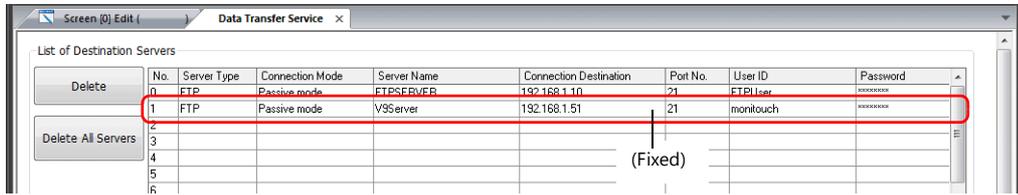
^{*1} For details on the FTP server function, refer to "6.9 FTP server".

^{*2} User name and password registration

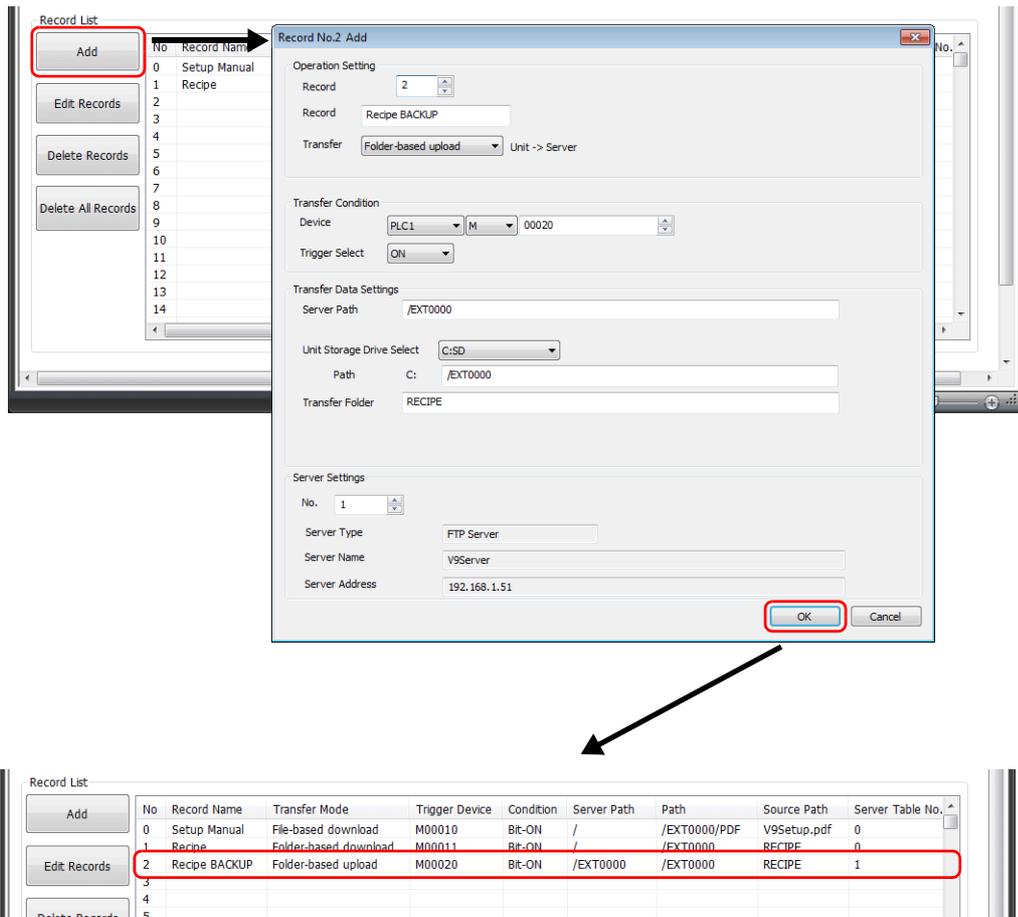
In addition to registration by computer or the V-SFT Ver. 6 screen configuration software, the user name and password used by the FTP server function can also be registered in Local mode on the V9 series unit. For details, refer to the V9 Series Troubleshooting/Maintenance Manual.

Client Settings (V9)

1. Click [System Setting] → [Data transfer server]. An area transfer service tab window is displayed.
2. Configure the following settings.
Set the same values as the server settings for [Connection Destination] (IP address), [User ID] (user name) and [Password].
Port number is fixed to 21.



3. Configure the following settings.



4. Click [OK].
This completes the necessary settings.

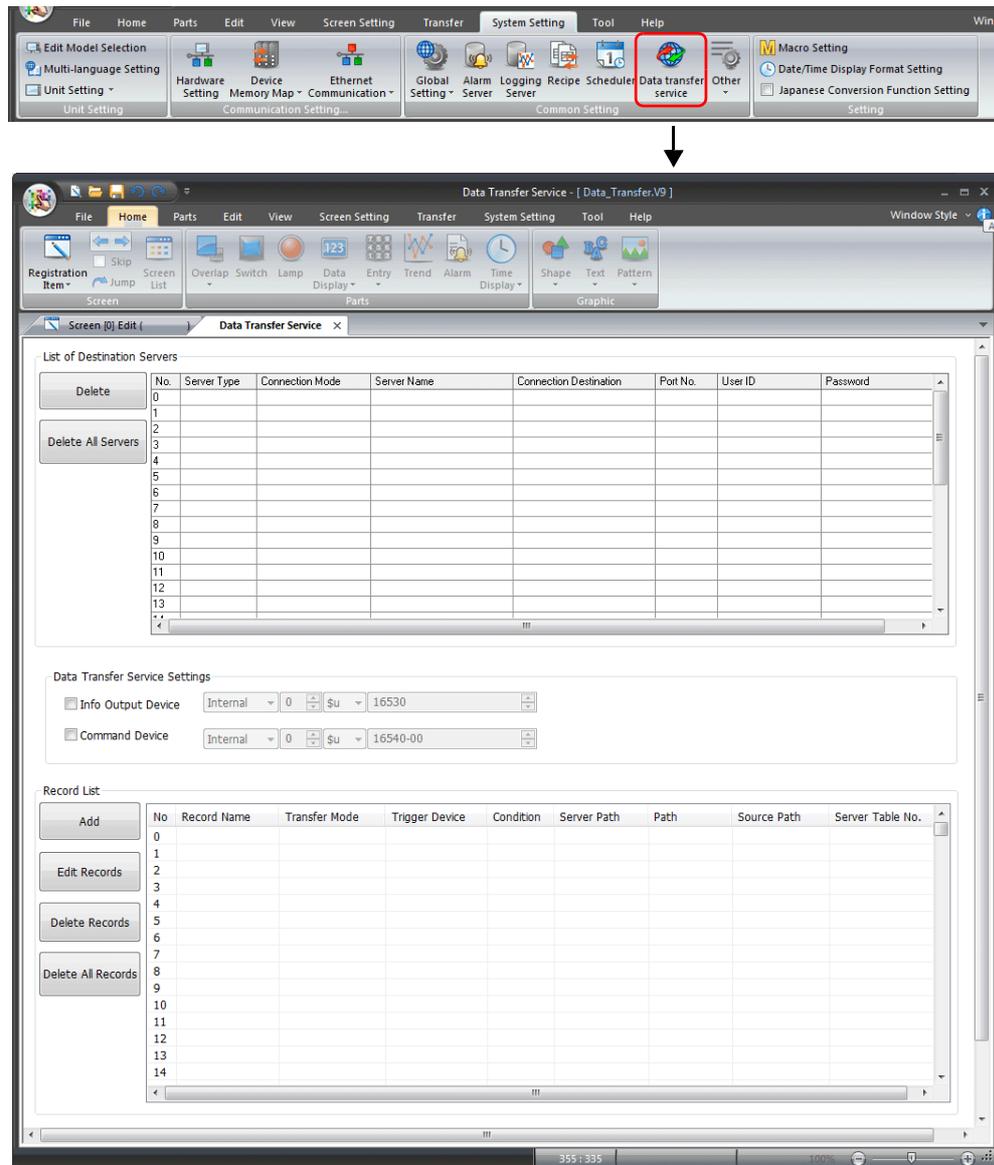
Unit Operation

Uploading (PUT) starts when the M20 bit turns ON.
The entire "RECIPE" folder on the server's SD card is updated by overwriting.

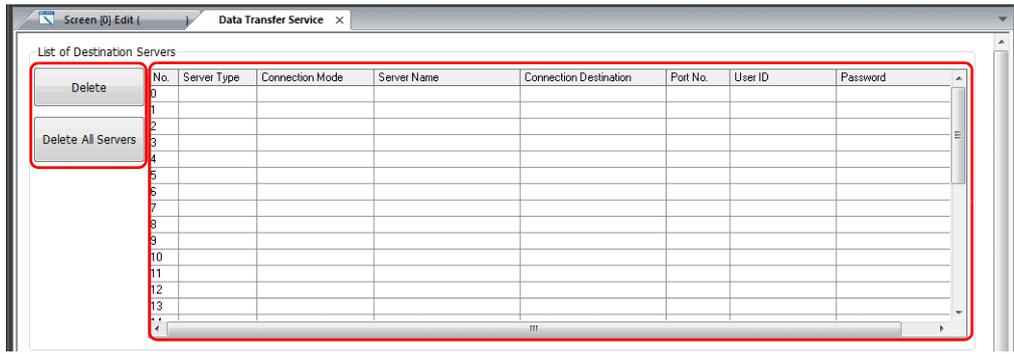
* Existing files will be overwritten.

6.11.5 Detailed Settings

Click [System Setting] → [Ethernet Communication] → [FTP Server]. The [Data Transfer Service] tab window is displayed.



List of Destination Servers

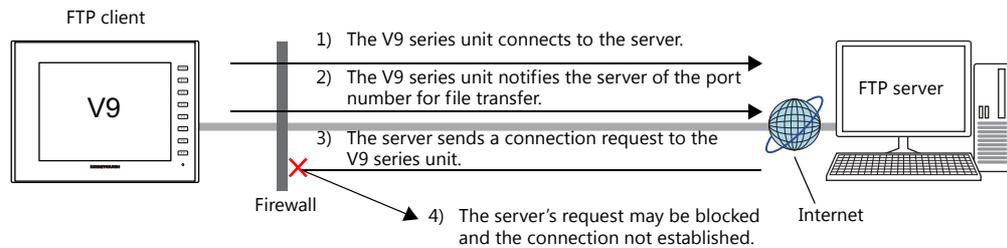


Item	Description	Remarks
Delete	Delete the selected server.	
Delete All Servers	Delete all registered servers.	
No.	Indicates the registration number of the server. No. 0 to 31	
Server Type	Specify the type of the server. FTP/Cloud (under development)	
Connection Mode *	Specify the connection mode. Active mode/Passive mode	
Server Name	Specify the name of the server. Within 32 one-byte characters	
Connection Destination	Specify the IP address of the server.	Set same values as server's settings.
Port No.	Specify the control port number of the server. (Default: 21)	Set same values as server's settings.
User ID	Specify the user ID (user name). Within 16 one-byte characters	Set same values as server's settings.
Password	Specify the password. Within 16 one-byte alphanumeric characters	Set same values as server's settings.

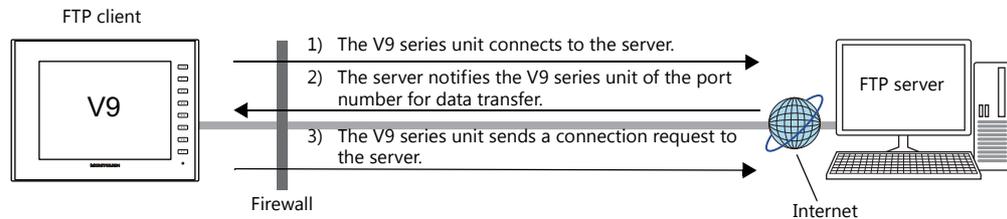
* Connection mode

Depending on the connection mode setting, the device that sends a connection request changes. When the FTP server is at an external location such as on the Internet, an external connection request may not be accepted due to the firewall's security policy. In this case, use the passive mode in which the V9 series unit (client) sends the connection request.

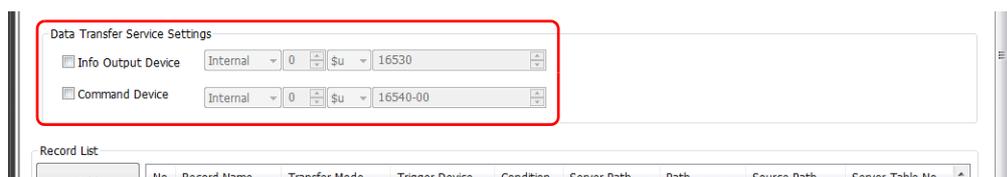
- Active mode



- Passive mode



Data Transfer Service Settings



Info Output Device

Device Memory	Description																																
n	<p>Storage of error information The bit of the currently occurring error turns ON.</p> <div style="text-align: center;"> <p>MSB</p> <table border="1" style="margin: auto;"> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>09</td><td>08</td><td>07</td><td>06</td><td>05</td><td>04</td><td>03</td><td>02</td><td>01</td><td>00</td> </tr> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </table> <p>LSB</p> </div> <p style="margin-left: 100px;">Reserved for system (setting: 0)</p> <p style="margin-left: 150px;">Definition error</p> <p style="margin-left: 150px;">Closing error</p> <p style="margin-left: 150px;">Directory creation error</p> <p style="margin-left: 150px;">Download error</p> <p style="margin-left: 150px;">Upload error</p> <p style="margin-left: 150px;">Server authentication error</p> <p style="margin-left: 150px;">Server connection error</p>	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	0	0	0	0	0	0	0	0	0							
	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																	
0	0	0	0	0	0	0	0	0																									
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Item</th> <th>Description</th> <th>Solution</th> </tr> </thead> <tbody> <tr> <td>Server connection error</td> <td>Timeout The specified server does not exist.</td> <td>Check that the server to connect to exists. Check that the LAN cable is correctly connected.</td> </tr> <tr> <td>Server authentication error</td> <td>User ID and password settings are invalid.</td> <td>Check the ID and password you used for login.</td> </tr> <tr> <td>Upload error</td> <td rowspan="2">The save destination path, transfer source path, and transfer data name for upload/download are invalid.</td> <td rowspan="2">Check that the transfer data exists and that paths are correct. Check server settings.</td> </tr> <tr> <td>Download error</td> </tr> <tr> <td>Directory creation error</td> <td>The specified data name does not exist.</td> <td></td> </tr> <tr> <td>Closing error</td> <td>Failed to establish connection with the server.</td> <td>Check that the LAN cable is correctly connected.</td> </tr> <tr> <td>Definition error</td> <td>An undefined error occurred.</td> <td>Check that the record settings at [System Setting] → [Data transfer service] are correct. Check server settings.</td> </tr> </tbody> </table>	Item	Description	Solution	Server connection error	Timeout The specified server does not exist.	Check that the server to connect to exists. Check that the LAN cable is correctly connected.	Server authentication error	User ID and password settings are invalid.	Check the ID and password you used for login.	Upload error	The save destination path, transfer source path, and transfer data name for upload/download are invalid.	Check that the transfer data exists and that paths are correct. Check server settings.	Download error	Directory creation error	The specified data name does not exist.		Closing error	Failed to establish connection with the server.	Check that the LAN cable is correctly connected.	Definition error	An undefined error occurred.	Check that the record settings at [System Setting] → [Data transfer service] are correct. Check server settings.											
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n+1	<p>Storage of error codes The most critical error code is stored. The next error code will not be saved until the cause of the stored error code is resolved.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Error Code</th> <th>Description</th> <th>Solution</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>No error</td> <td>-</td> </tr> <tr> <td>1</td> <td>Timeout The specified server does not exist.</td> <td>Check that the server to connect to exists. Check that the LAN cable is correctly connected.</td> </tr> <tr> <td>2</td> <td>User ID and password settings are invalid.</td> <td>Check the ID and password you used for login.</td> </tr> <tr> <td>3</td> <td>The save destination path, transfer source path, and transfer data name for upload are invalid.</td> <td rowspan="2">Check that the transfer data exists and that paths are correct. Check server settings.</td> </tr> <tr> <td>4</td> <td>The save destination path, transfer source path, and transfer data name for download are invalid.</td> </tr> <tr> <td>5</td> <td>Could not access the data for transfer.</td> <td>Check that the LAN cable is correctly connected.</td> </tr> <tr> <td>6</td> <td>An undefined error occurred.</td> <td>Check that the record settings at [System Setting] → [Data transfer service] are correct. Check server settings.</td> </tr> </tbody> </table>	Error Code	Description	Solution	0	No error	-	1	Timeout The specified server does not exist.	Check that the server to connect to exists. Check that the LAN cable is correctly connected.	2	User ID and password settings are invalid.	Check the ID and password you used for login.	3	The save destination path, transfer source path, and transfer data name for upload are invalid.	Check that the transfer data exists and that paths are correct. Check server settings.	4	The save destination path, transfer source path, and transfer data name for download are invalid.	5	Could not access the data for transfer.	Check that the LAN cable is correctly connected.	6	An undefined error occurred.	Check that the record settings at [System Setting] → [Data transfer service] are correct. Check server settings.									
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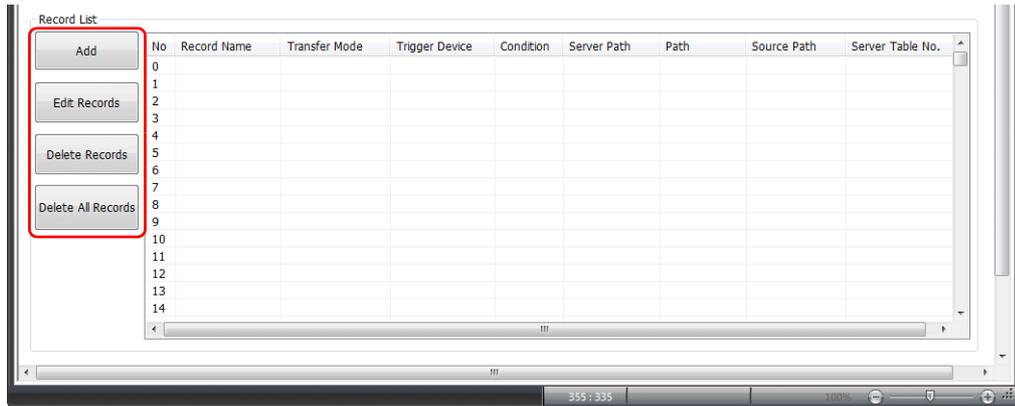
Command Device

Device Memory	Description
n	Forcibly cancels the data transfer. 1: Transfer cancellation

* Data transfer can also be cancelled from the status bar.

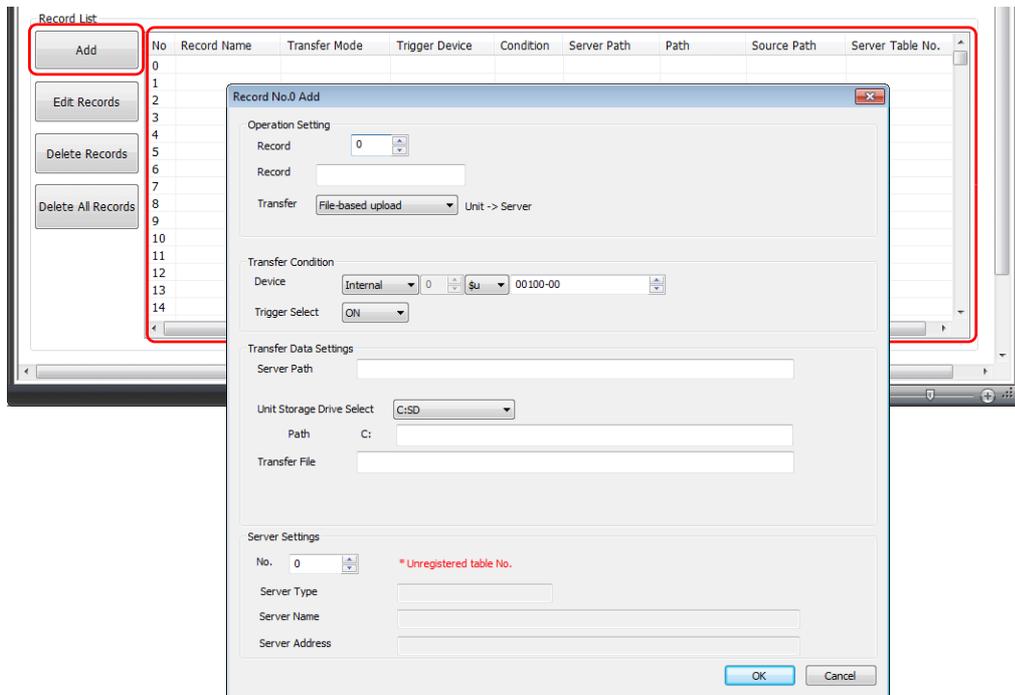
 For details, refer to "Status Bar" page 6-87.

Record List



Item	Description
Add	Add a new record. For details, refer to "Record Editing Window".
Edit Records	Edit the currently selected record number. For details, refer to "Record Editing Window".
Delete Records	Delete the selected record.
Delete All Records	Delete all registered records.

Record editing window



Item	Description
Record	Select the record number for editing. No. 0 to 255
Record	Register a record name. Within 32 one-byte alphanumeric characters

Item	Description
Transfer	Select the data to transfer and the direction of the transfer. ([Unit]: storage device of V9 series unit) File-based upload (From unit to server) Folder-based upload (From unit to server) File-based download (From server to unit) Folder-based download (From server to unit)
Device	Specify the device memory address that triggers the record.
Trigger Select	Specify the bit operation (edge). *1 ON: Execute at OFF → ON. OFF: Execute at ON → OFF.
Server Path	Specify the path of the server. Number of characters for a path: Within 255 one-byte characters (including ":" and "/") *2
Unit Storage Drive Select	Select the storage device of the V9 series unit. C: SD D: USB (USB flash drive etc.)
Path	Specify the path within the storage device of the V9 series unit. Number of characters for a path: Within 255 one-byte characters (including ":" and "/") *2
Transfer File/Transfer Folder	Specify the name of the file or folder for transfer. When specifying a file, specify the extension as well. Within 256 one-byte alphanumeric characters
Server Settings No.	Specify the number registered on the server list. No. 0 to 31

*1 Level recognition is used to judge the bit status and thereby whether to start communication. For example, when [Trigger Select] is set to [ON], data transfer is executed when communication is started with the bit on the PLC in the ON status.

*2 There is no path hierarchy limitation. The path delimiter is a slash "/". A delimiter at the end of the path is not required. However, if specifying a root directory, a delimiter is required.

Example: Transferring to a root directory

The screenshot shows the 'Transfer Data Settings' dialog box. The 'Server Path' field is highlighted with a red box and contains a forward slash (/). Below it, the 'Unit Storage Drive Select' is set to 'C:SD'. The 'Path' field is set to 'C: /EXT0000' and the 'Transfer Folder' is 'RECIPE'. In the 'Server Settings' section, 'No.' is 0, 'Server Type' is 'FTP Server', 'Server Name' is 'FTPSERVER', and 'Server Address' is '192.168.1.10'. 'OK' and 'Cancel' buttons are at the bottom right.

6.11.6 FTP Server Settings

The server must have an FTP server built up. Refer to the following.

Server: Computer etc.

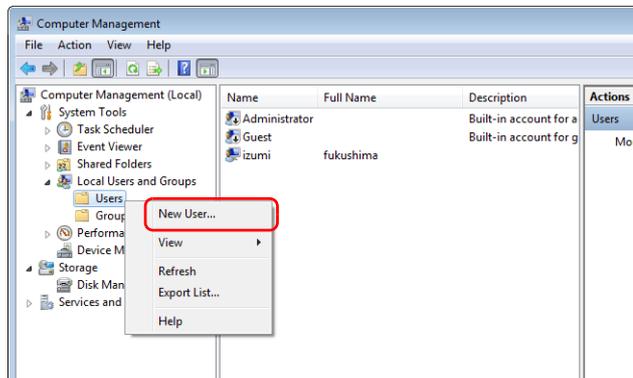
FTP server settings differ according to the FTP server to use and tools. Refer to respective manuals. This section describes the settings for Microsoft Internet Information Services (IIS) as an example.

Creating a User Account for Logging Onto FTP

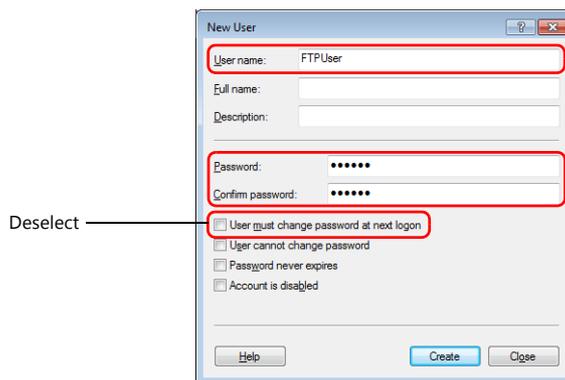
This procedure is for creating a new local user account.

- ☞ This setting is not required if using an existant local user account. Install IIS.
For details, refer to "IIS installation" page 6-83.

1. Double-click [Computer Management] from [Control Panel] → [Administrative Tools].
2. Right-click on [Users] under [Local Users and Groups] and click on [New User].

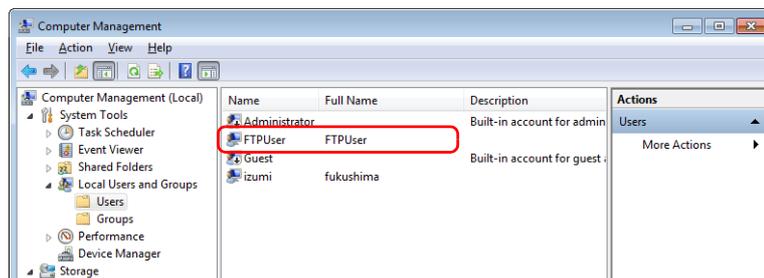


3. Enter a user name and password respectively. Deselect the [User must change password at next logon] checkbox and then click [Create].



* The user name and password are required for using the data transfer service function of V-SFT. Take care not to lose them.

4. Click [Close]. A new local user will be added.



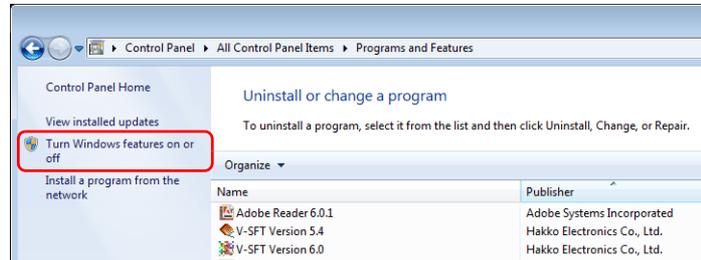
IIS Settings

This section describes the installation procedure for IIS and FTP server settings.

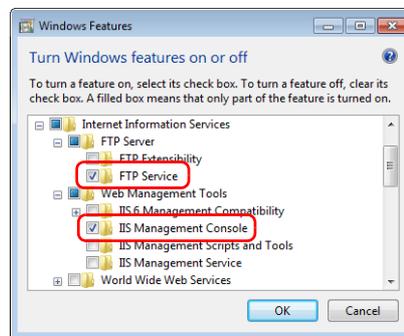
IIS installation

Example: Windows 7

1. Click on [Turn Windows features on or off] from [Control Panel] → [Programs and Features].

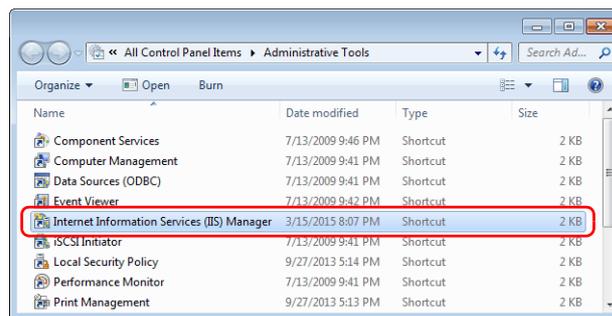


2. Select the [FTP Service] and [IIS Management Console] checkboxes under [Internet Information Services] and click [OK].

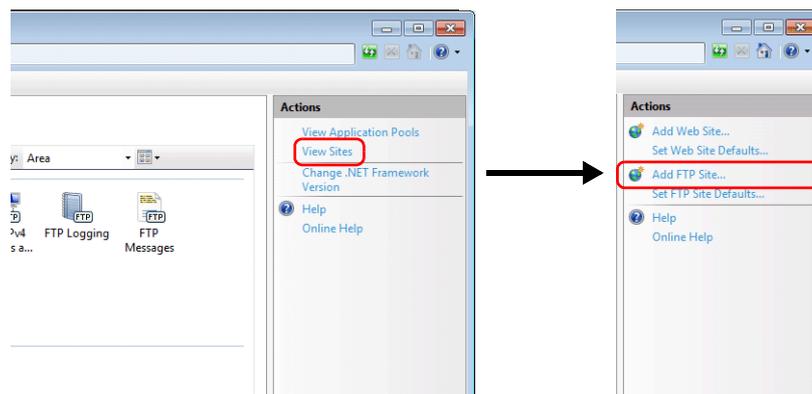


FTP server settings

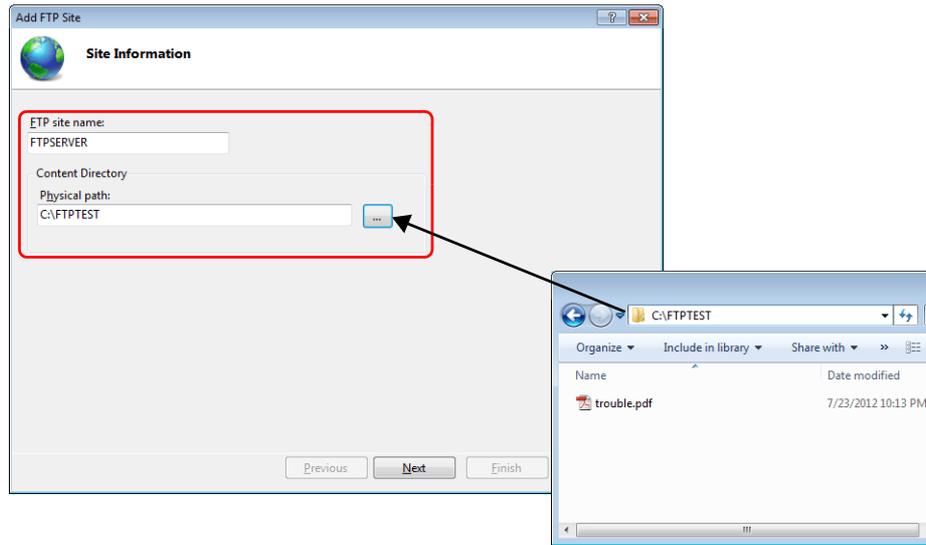
1. Double-click [Internet Information Services (IIS) Manager] from [Control Panel] → [Administrative Tools]. The Internet Information Services (IIS) Manager starts up.



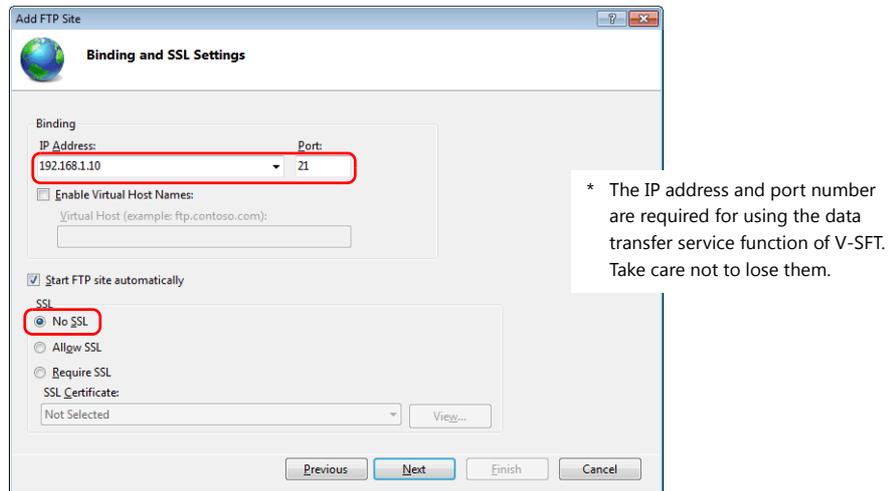
2. In the right pane of the window, click [View Sites] → [Add FTP Site].



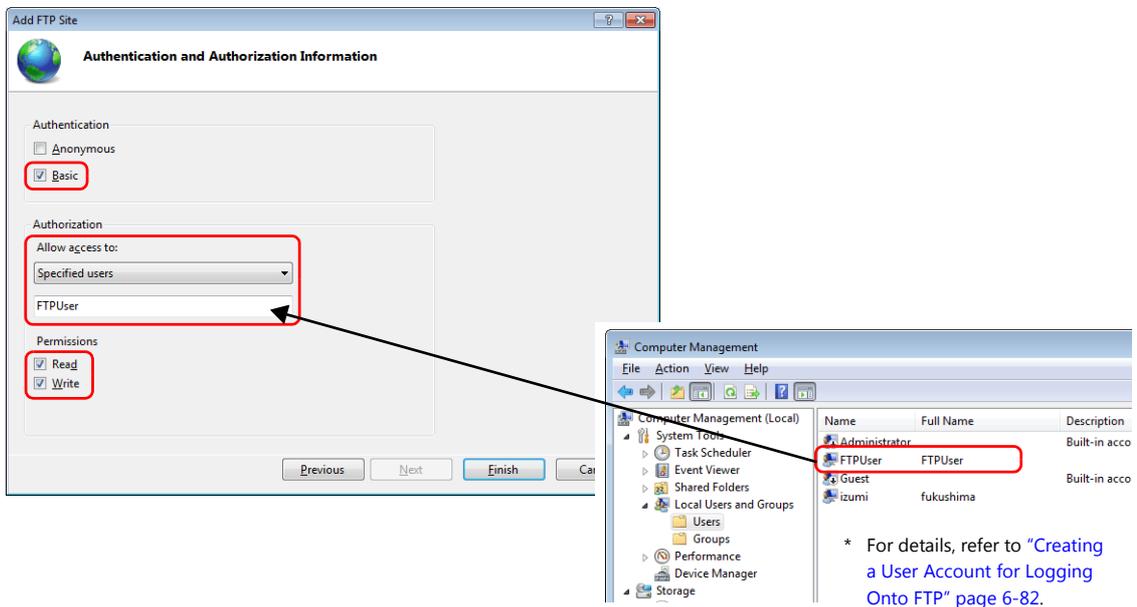
- Fill in the [FTP site name] and [Content Directory] fields and click [Next].



- Select the IP address of your computer. Then select [No SSL] for [SSL] and click [Next].

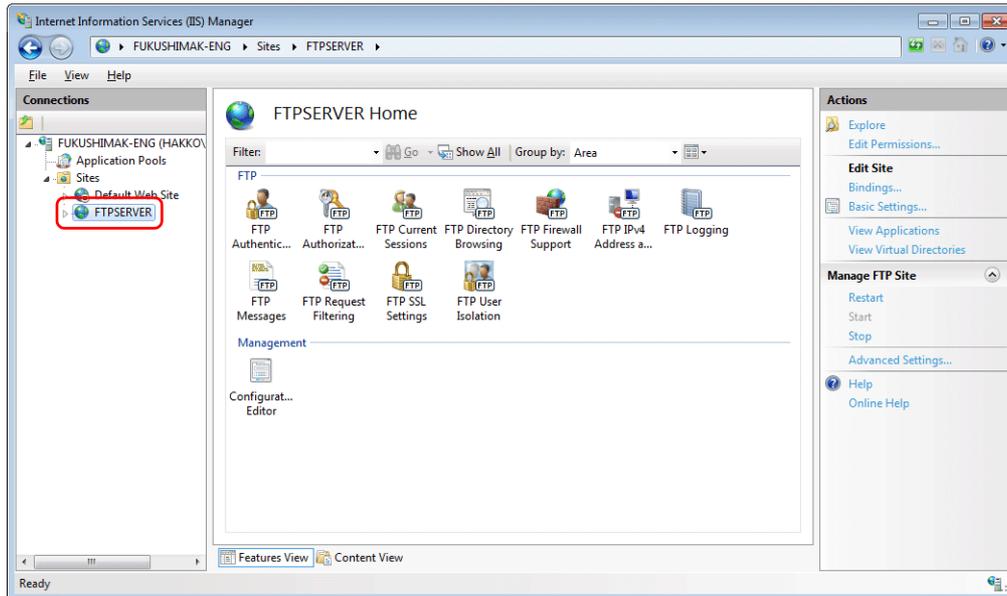


- Configure [Authentication] and [Authorization] as follows.
For [Allow access to], select [Specified users] and input the local user name for logging onto the FTP.



* For details, refer to "Creating a User Account for Logging Onto FTP" page 6-82.

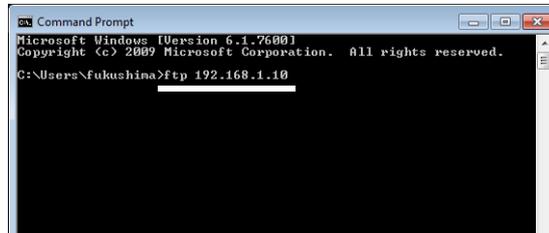
- Click [Finish]. A new FTP server setting is added.



Checking FTP Server Logon

This section describes the procedure for checking if you can log onto the FTP server by using a Command Prompt window.

1. Click on [Command Prompt] from the computer's start menu → [All Programs] → [Accessories]. A command prompt window opens.
2. In the command prompt window, enter "ftp", a one-byte space, and the server's IP address in order and press the [Enter] key.

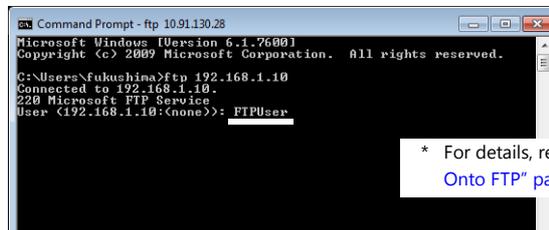


```

Microsoft Windows [Version 6.1.7600]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\fukushina>ftp 192.168.1.10
  
```

3. Enter the user name for logging onto the FTP and press the [Enter] key.



```

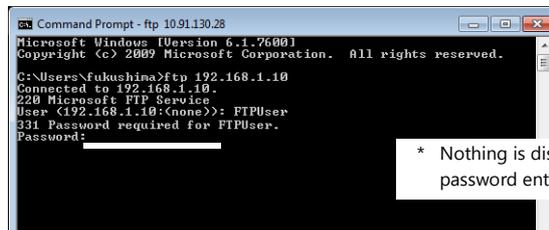
Microsoft Windows [Version 6.1.7600]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\fukushina>ftp 192.168.1.10
Connected to 192.168.1.10.
220 Microsoft FTP Service
User (192.168.1.10:(none)): FTPUser
  
```

* For details, refer to "Creating a User Account for Logging Onto FTP" page 6-82.

4. Enter the password for the user name entered in step 3 and press the [Enter] key.

Example: ftp123



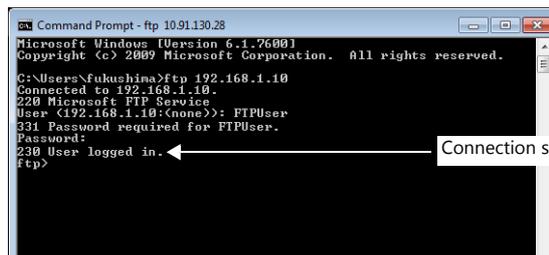
```

Microsoft Windows [Version 6.1.7600]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\fukushina>ftp 192.168.1.10
Connected to 192.168.1.10.
220 Microsoft FTP Service
User (192.168.1.10:(none)): FTPUser
331 Password required for FTPUser.
Password:
  
```

* Nothing is displayed and the cursor will not move during password entry.

Logon is successful when "230 User logged in." is displayed.



```

Microsoft Windows [Version 6.1.7600]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\fukushina>ftp 192.168.1.10
Connected to 192.168.1.10.
220 Microsoft FTP Service
User (192.168.1.10:(none)): FTPUser
331 Password required for FTPUser.
Password:
230 User logged in.
ftp>
  
```

Connection successful



When logon doesn't succeed

- Settings for the IIS, user name and password may be incorrect. Check the settings.
- Firewall may be enabled. Disable firewall and perform the check again.

Server: V9 Series Unit



For details on settings, refer to "Setting Example 2: When Server is a V9 Unit" page 6-75.

6.11.7 Checking the Transfer Status

System Device Memory (\$s)

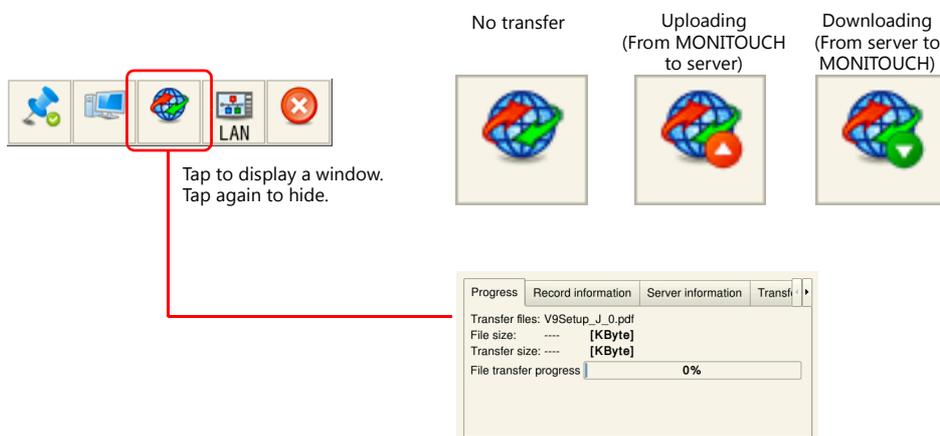
The following describes the system device memory.

Address	Description	Remarks
\$s1690	Checking of FTP communication status 0: Not communicating 1: Upload (PUT) 2: Download (GET)	← V
\$s1691	Record number in execution (only when \$s1690 is set to 1 or 2)	← V
\$s1692	Server table number in execution (only when \$s1690 is set to 1 or 2)	← V

Status Bar

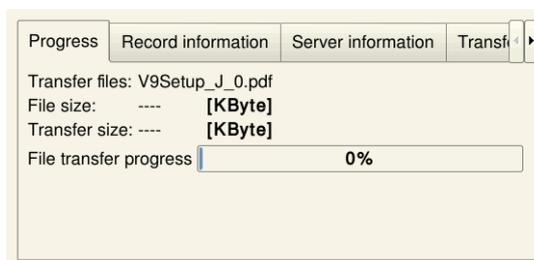
Displays the current data transfer status.

Press the icon to check the progress of a transfer or the detailed information of the data for transfer. Cancellation of data transfer is also possible.



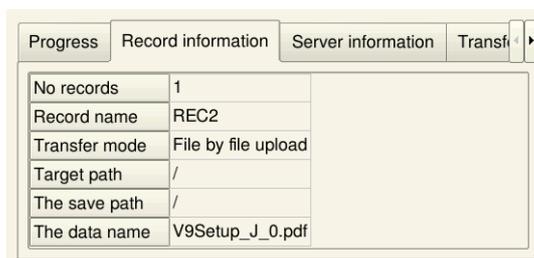
Progress

The file currently being transferred and the progress of the data transfer is displayed.



Record information

The record number of the current data transfer and its detailed information is displayed.



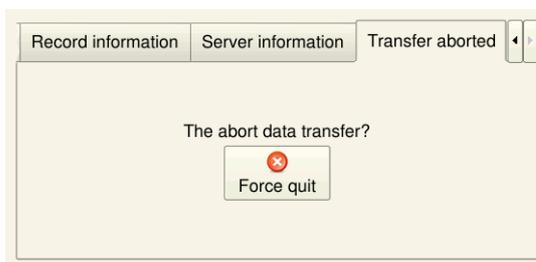
Server information

The information of the server with which the current data transfer is being executed is displayed.

Progress	Record information	Server information	Transfer
Server name	FTPSERVER		
Connect to	192.168.1.10		
Server type	FTP server		
Connection mode	Passive mode		
Port No	21		

Transfer aborted

Forcibly cancels the data transfer.



* **Data transfer can also be cancelled by a PLC bit command.**

 For details, refer to ["Data Transfer Service Settings"](#) page 6-79.

6.11.8 Limitations

- Operation when the same data exists at the transfer destination:
 - Download (GET): Overwrite
 - Upload (PUT): Depends on server settings
- Files for which transfer was cancelled or failed to transfer are not saved at the transfer destination (when downloading only).
- When a transfer is cancelled or Ethernet communication is disconnected, all records currently in queue for transfer are cancelled.
- The Local mode screen cannot be displayed during data transfer.

7 Convenient Functions

7.1 Enlarging and Scrolling Screens

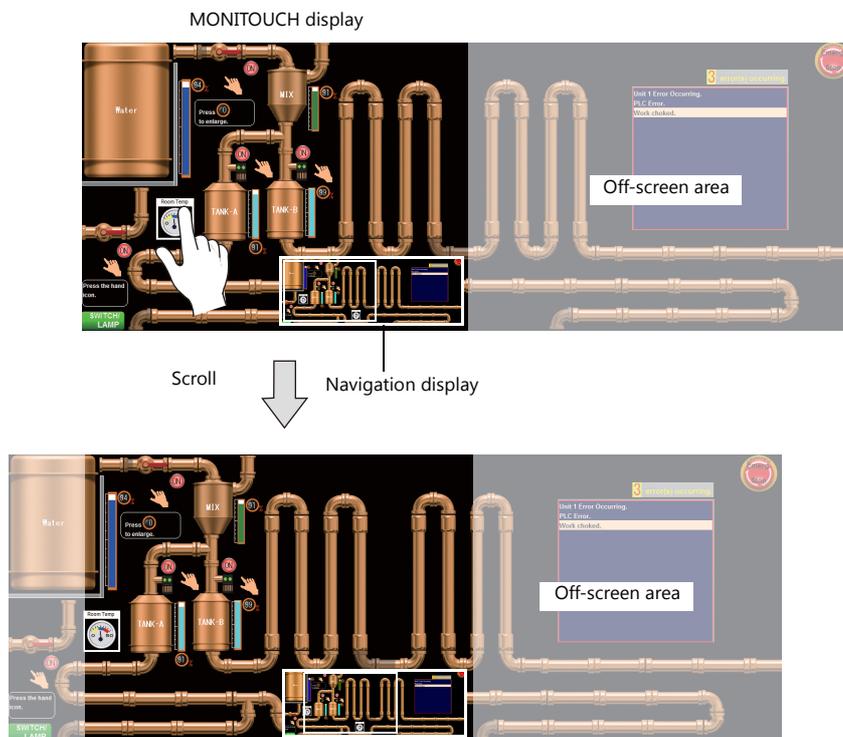
7.2 Splash Screen

7.1 Enlarging and Scrolling Screens

7.1.1 Overview

Enlarging the Screen Size

Screen sizes larger than the display size (resolution) of the V9 series unit can be registered. When a display is partially off-screen, the display can be scrolled to display the off-screen content. A navigation display (a miniaturized display of the entire screen) is shown during scrolling to indicate the current display position.



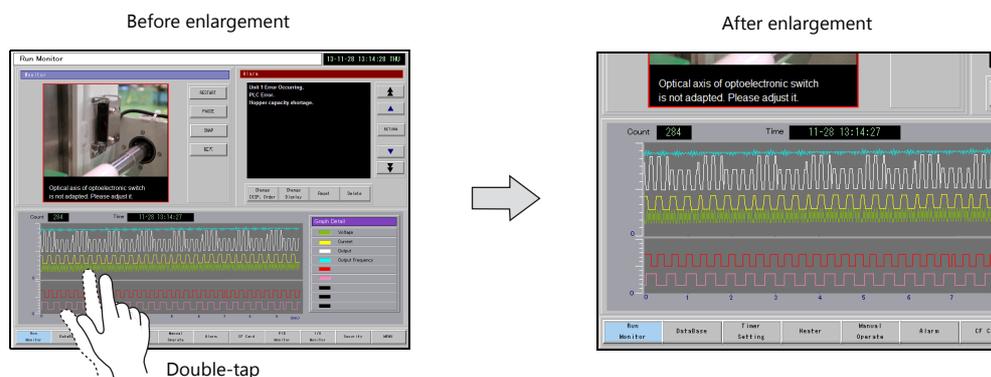
For details on settings, refer to [“Enlarging the Screen Size”](#) page 7-2.

Location of Settings

- Screen
- Overlap

Enlarged Display

The display of the screen can be enlarged up to 200% by double-tapping on the screen. After enlarging the screen, the display can be scrolled to show off-screen content.



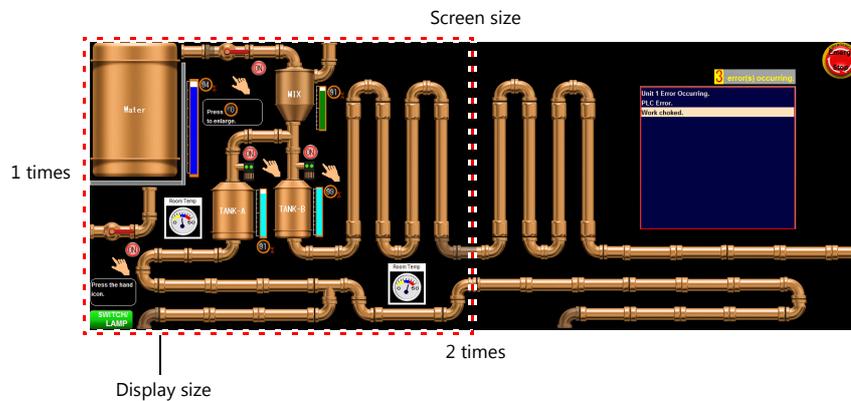
* After enlargement to the maximum magnification, the screen display returns to its original size.

For details on settings, refer to [“Enlarged Display”](#) page 7-3.

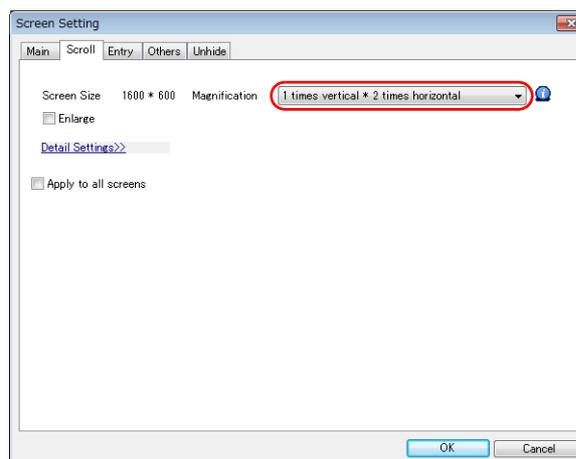
7.1.2 Setting Example

Enlarging the Screen Size

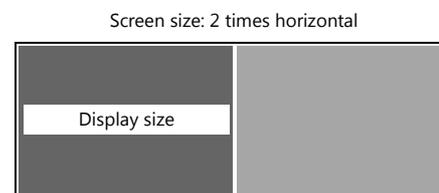
This section explains the settings used when displaying and scrolling a screen that is two times larger in horizontal direction than the display of the V9 series unit.



1. Display the scrolling settings
 - For screens: [Screen Setting] → [Screen Setting] → [Scroll] tab window
 - For overlaps: Overlap setting window → [Scroll] settings
2. Set [Magnification] to "1 times vertical × 2 times horizontal".



This completes the necessary settings.
 The screen size is extended two fold in the horizontal direction.
 Scrolling becomes available on the MONITOUCH.

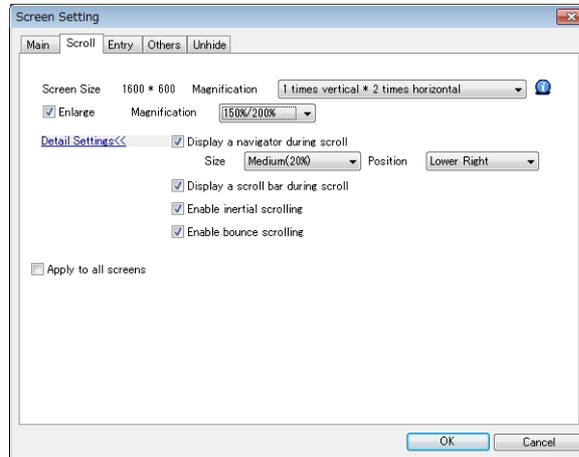


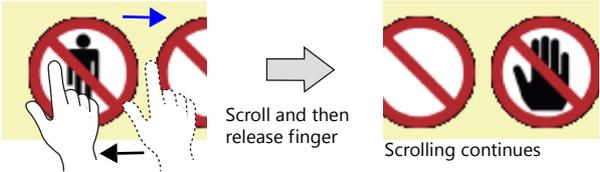
7.1.3 Detailed Settings

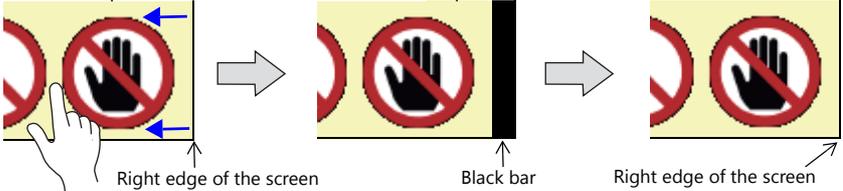
Screen

Location of settings: [Screen Setting] → [Screen Setting]

Scroll

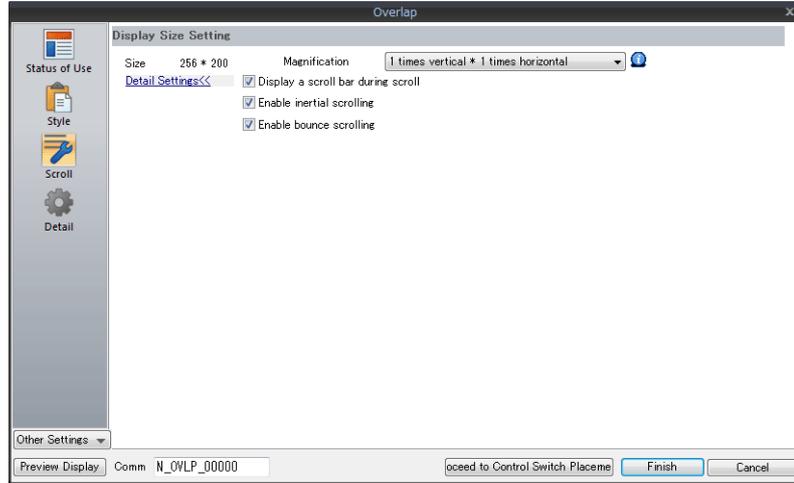


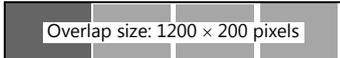
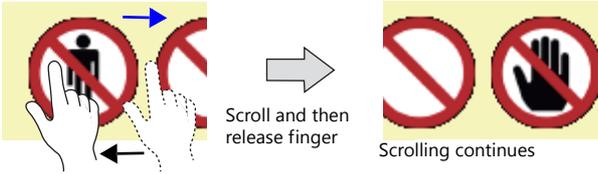
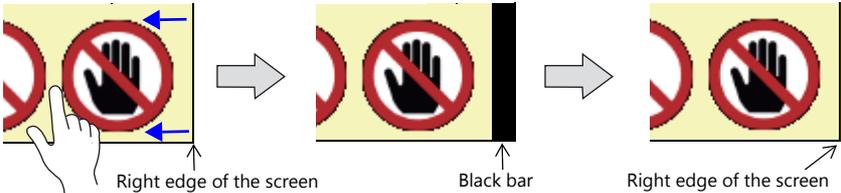
Item	Description
Screen Size	Displays the screen size.
Magnification	Set the editing size of the screen. 1 times vertical × 1 times horizontal / 1 times vertical × 2 times horizontal / 1 times vertical × 3 times horizontal / 1 times vertical × 4 times horizontal 2 times vertical × 1 times horizontal / 2 times vertical × 2 times horizontal / 3 times vertical × 1 times horizontal / 4 times vertical × 1 times horizontal Example: 1 times vertical × 4 times horizontal 
Enlarge	Double-tap on the screen to zoom in. The current magnification is output to \$s1641. If the enlargement setting is not selected, \$s1641 always stores "100".
Display a navigator during scroll	Show a miniaturized display of the entire screen when scrolling. 
Size	Set the size of the navigation window (as a percentage of the screen resolution of the V9 series unit). Small (15%), Medium (20%), Large (25%)
Position	Set the display position of the navigation window. Lower Right, Lower Left, Upper Right, Upper Left
Display a scroll bar during scroll	Display a scroll bar at the right edge and bottom when scrolling. The scroll bar itself cannot be operated.
Enable inertial scrolling	Allow scrolling to continue after releasing your finger from the screen when scrolling. The speed of scrolling gradually decreases until it stops. 

Item	Description
Enable bounce scrolling	<p>Scrolling will bounce to indicate that movement in the particular direction has reached its limit. A black bar is displayed momentarily.</p>  <p>Right edge of the screen</p> <p>Black bar</p> <p>Right edge of the screen</p>
Apply to all screens	Apply the same settings to all screens.

Overlap

Scroll



Item	Description
Size	Displays the size of the overlap.
Magnification	<p>Set the editing size of the overlap.</p> <p>1 times vertical × 1 times horizontal / 1 times vertical × 2 times horizontal / 1 times vertical × 3 times horizontal / 1 times vertical × 4 times horizontal / 2 times vertical × 1 times horizontal / 2 times vertical × 2 times horizontal / 3 times vertical × 1 times horizontal / 4 times vertical × 1 times horizontal</p> <p>Example: 1 times vertical × 4 times horizontal</p> <p> </p>
Display a scroll bar during scroll	Display a scroll bar at the right edge and bottom when scrolling. The scroll bar itself cannot be operated.
Enable inertial scrolling	<p>Allow scrolling to continue after releasing your finger from the screen when scrolling. The speed of scrolling gradually decreases until it stops.</p> 
Enable bounce scrolling	<p>Scrolling will bounce to indicate that movement in the particular direction has reached its limit. A black bar is displayed momentarily.</p> 

7.1.4 Notes

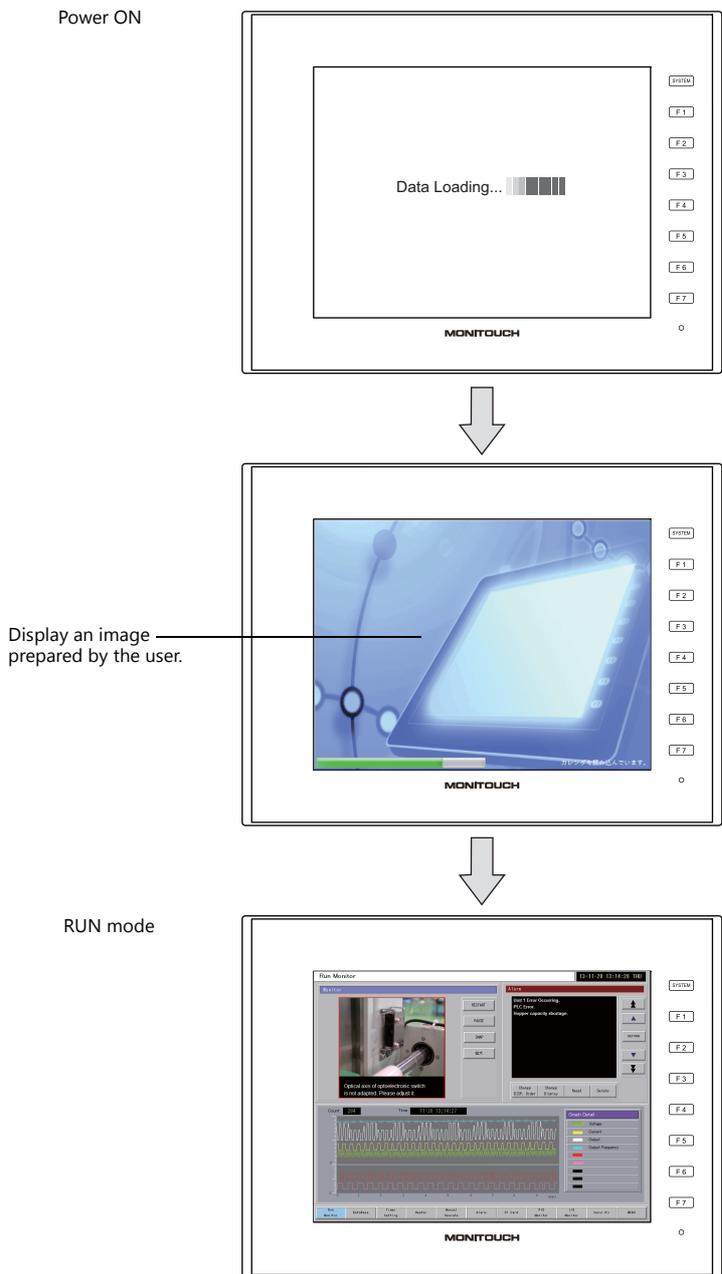
- Scrolling cannot be performed at locations where there are switches.
- Magnification defaults to 100% after changing screens or executing the "RESET_SCRN" macro command.
- Navigation items cannot be operated. In addition, items placed under the navigation window cannot be operated.
- Increasing the editing size does not change the number of items that can be placed on the screen.
- The display size of the V9 series unit is the maximum editing size for patterns.
- When an overlap transition is in progress, screen enlargement and scrolling cannot be performed. In addition, if an overlap transition is initiated during screen enlargement or scrolling, the transition only starts after the enlargement or scrolling operation is finished.

7.2 Splash Screen

7.2.1 Overview

An image prepared by the user can be used as the splash screen which is displayed while the V9 series unit is starting up. Images relevant to the usage environment, such as a company logo or precautions can be displayed. The set image will also be displayed when switching between RUN mode and Local mode.

Startup sequence



Splash Screen

A splash screen is an image displayed on a computer while software is starting up.

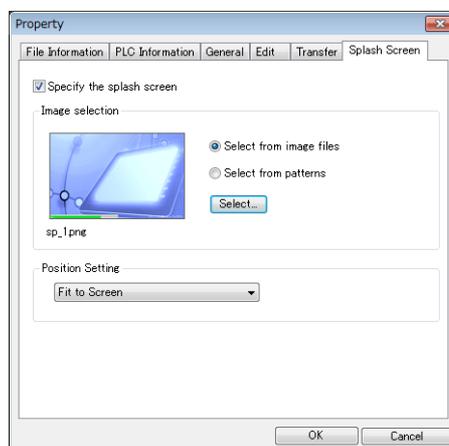
7.2.2 Setting Example

This section explains how to set the following image as the splash screen.

Filename: Splash.png



1. Prepare a PNG file, e.g. Splash.png
2. Select the [File] → [Property] → [Splash Screen] → [Specify the splash screen] checkbox.
3. Click [Select from image files] → [Select] and select the PNG file prepared in step 1.



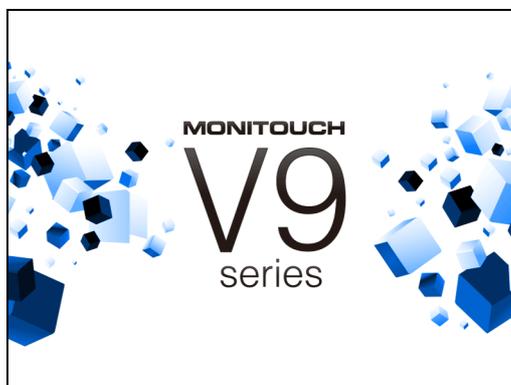
The image is copied to the following location when selected.

C:\MONITOUCH\User\Splash

4. Set the display position of the image under [Position Setting].

This completes the necessary settings.

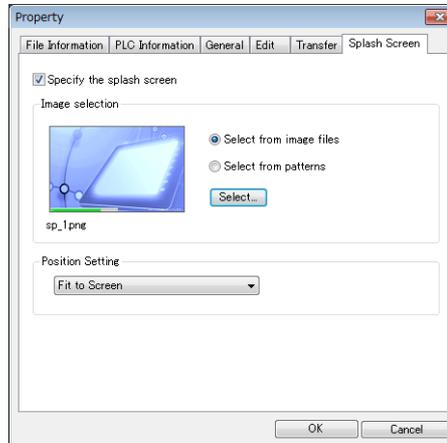
The following image is displayed when the [Specify the splash screen] checkbox is not selected.



7.2.3 Detailed Settings

Location of settings: [File] → [Property] → [Splash Screen]

Splash Screen



Item	Description
Specify the splash screen	Display a user-prepared image on the screen during startup.
Select from image files	Select a PNG file from the desired folder. File extension: png The selected png file is stored at the following location. C:\MONITOUCH\User\Splash
Select from patterns	Select a pattern registered in the screen program. Patterns are registered at [Home] → [Registration Item ▼] → [Pattern].
Position Setting	Specify the display position of the image. Fit to Screen/Fit to Width/Fit to Height/Display in Center

7.2.4 Notes

- Any area outside the image is displayed in black.
- Patterns set to blink are displayed without blinking.
- When a PNG file is modified, it must be reselected from [Select from images] → [Select].
- If opening a screen program in which PNG files are selected on a different computer or reading the screen program from the V9 series unit, the PNG file is stored at the following location. If a filename with the same name already exists, it is overwritten.

C:\MONITOUCH\User\Splash

MEMO

MONITOUCH



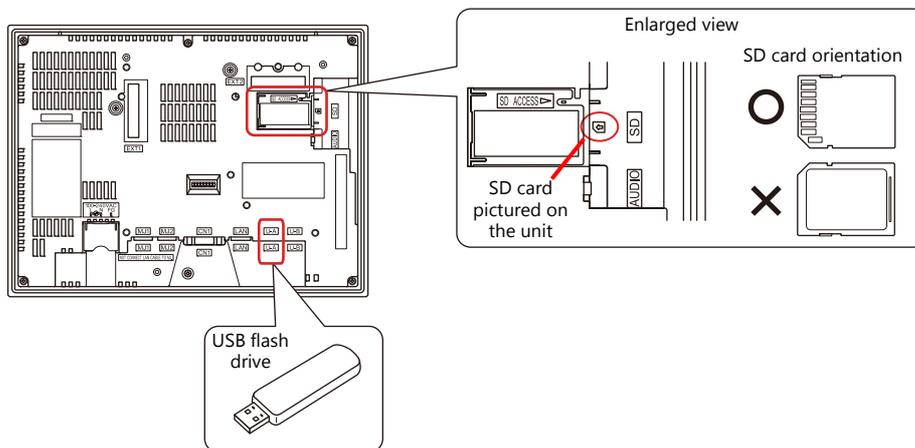
8 Storage Device

8.1 Overview

8.1.1 Connections

The SD card interface and USB-A port are provided on the V9 series unit as standard features. Connecting commercially available SD cards and USB memory devices (referred to hereafter as storage devices) enables them to be used for a variety of functions including screen program transfer, saving of logging data, and saving of screenshot images.

Example: V9100iS rear



8.1.2 Storage Device Specifications

Specifications

The following storage devices can be used with the V9 series.

Type	Capacity	File System	Connection Port
SD card	Max. 2 GB	FAT, FAT32	Built-in SD card socket
SDHC card	4 - 32GB	FAT32	
USB flash drive	Max. 32GB	FAT, FAT32	USB-A:
CF card			USB-A: (Requires Hakko Electronics "USB-CFREC-2" CF card recorder) (under development)

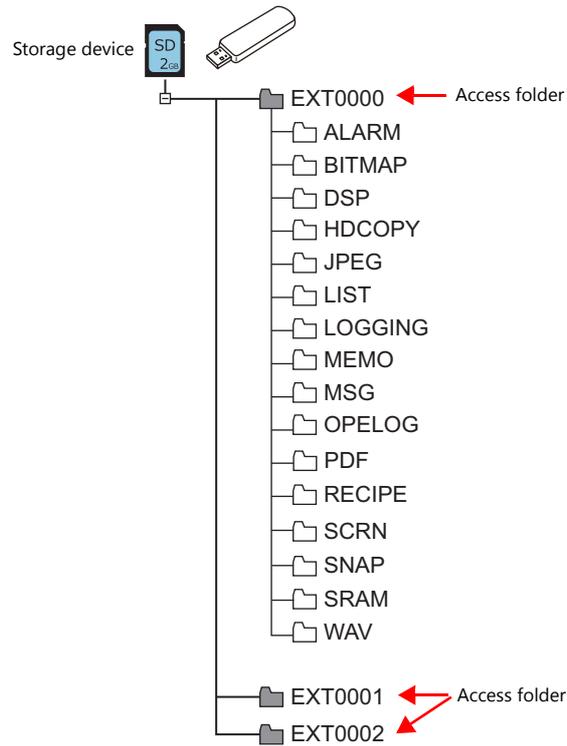
Notes on Handling Storage Devices

- When inserting an SD card into the unit, make sure to insert it in the correct orientation. Failure to do so may damage the SD card or the slot on the unit.
- The SD card access LED flashes red when the SD card is being accessed. Do not remove the SD card while the LED is flashing. Doing so may destroy data on the SD card.
- Always remove the SD card with [System Menu] → [Storage Removal] or with the [Storage Removal] switch.
- Do not turn off MONITOUCH during access to a storage device.
- Make a backup copy of storage devices at regular intervals.
- If a disk error occurs and data read/write operation is disabled, execute ScanDisk on Windows and try to restore the disk. If the disk cannot be restored, format the storage device. If you format the device, data on the device is completely lost. (For details on scanning the disk or Windows operations, refer to the Windows help information.)
- The number of write cycles for a storage device is limited. Consequently, frequent writing at short intervals may shorten the service life of storage devices. When using an SD card to save logging/alarm data, be aware of the logging time/monitoring frequency setting. Be sure to avoid constantly writing to an SD card with the CYCLE macro command.
- Note that the amount of the data to be written should not exceed the memory capacity of the storage device. In particular, when using functions to write data from the V9 series unit to a storage device, such as backing up logging data, saving screen programs, saving screenshot images, or transferring recipe data, always consider the capacity limit of the storage device. Note that the amount of free space on a storage device can be checked with system device memory.
- If a screen program that uses storage device functions loaded onto the V9 series unit, be sure to insert the relevant storage device before running the screen program.

8.2 Access Folders

8.2.1 Access Folders

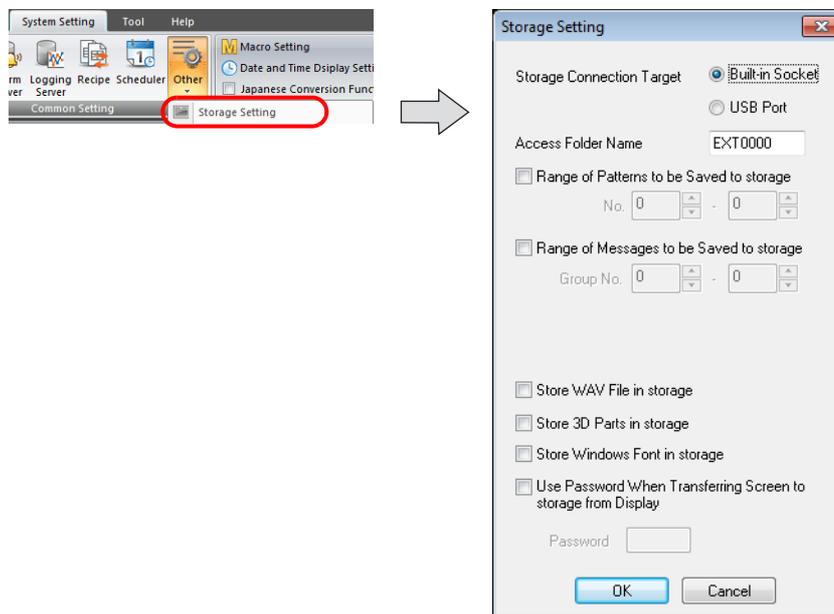
- Access folders are folders which are accessed regularly in RUN mode.
An access folder is created when a screen program is written using storage manager.
Access folders are also created when a formatted storage device is connected to MONITOUCH and a writing operation is executed.
- The access folder name is specified in the screen program.
Location of setting: [System Setting] → [Other] → [Storage Setting] → [Access Folder Name]
 ["Storage Device Settings" page 8-3](#)
- If creating access folders with names differing by each screen program, multiple screen programs can be saved in respective folders as long as there is sufficient capacity on the storage device.



8.2.2 Storage Device Settings

Settings including the storage connection target, access folder name, and other storage-related items are configured in the [Storage Setting] window.

[System Setting] → [Other] → [Storage Setting]



Item	Description
Storage Connection Target	Select the location of the storage device for access in RUN mode. Built-in Socket USB Port
Access Folder Name	Set a different folder name for each screen program. (default: EXT0000) One-byte characters: 64 characters or less (not case-sensitive) *1 Two-byte characters: 32 characters or less If the same folder name already exists, data will be overwritten.
Range of Patterns to be Saved to storage	Store pattern data on the storage device.
Range of Messages to be Saved to storage	Store messages on the storage device.
Store WAV File in storage	Store audio files on the storage device. * Not supported on V9 Lite models
Store 3D Parts in storage	Store images for 3D parts on the storage device.
Store Windows Font in storage	Store Windows fonts on the storage device.
Use Password When Transferring Screen to storage from Display	Password: Maximum of 6 one-byte alphanumeric characters A password can be set for when transferring data from MONITOUCH to storage on the [Storage Transfer] screen in Local mode. This setting is valid even if no password is set.

*1 These are recognized as uppercase characters. If inputting lowercase characters on the editor screen, they are converted into uppercase characters when [OK] is clicked, and are recognized as uppercase characters on MONITOUCH.

8.2.3 Folder Configuration

The following table lists the folder names and names of files in each folder.

Access folder (EXT0000)

Folder Name	Description	Filename	Transfer Direction	Refer to
ALARM	Alarm history	ALARM00.BIN - ALARM11.BIN ^{*1} ALARM00.BIN-journal - ALARM11.BIN-journal ^{*2} EVENT00.BIN - EVENT11.BIN ^{*1} EVENT00.BIN-journal - EVENT11.BIN-journal ^{*2} ALARM_aa_bb.CSV ^{*1} (aa: Block No., bb: No.) (arbitrary filename).CSV ^{*1 *3}	V9 ← storage device ^{*5} V9 → storage device	page 8-25
BITMAP	Pattern data	BMP0000.BIN to BMP1023.BIN	V9 ← Storage	page 8-19
DSP	Screen program	DSP0000.BIN	V9 ← storage device V9 → storage device	page 8-7
HDCOPY	Screenshot image	HD0000.PNG - HD9999.PNG HD000~yy.PNG - HD999~yy.PNG (arbitrary filename).PNG ^{*3}	V9 → storage device	page 8-26
JPEG	JPEG file	JP00000.JPG - JP32767.JPG (arbitrary filename).JPG ^{*3}	V9 ← storage device	page 8-23
LIST	Data sheet PDF output	LISTxxxx.PDF ^{*4} (arbitrary filename)xxxx.PDF ^{*3 *4} (xxx: Top page number)	V9 → storage device	page 8-27
LOGGING	Logging data	LOGGING00.BIN - LOGGING11.BIN ^{*1} LOGGING00.BIN-journal - LOGGING11.BIN-journal ^{*2} LOGGING_aa_bb.CSV ^{*1} (aa: Block No., bb: No.) (arbitrary filename).CSV ^{*1 *3}	V9 ← storage device ^{*5} V9 → storage device	page 8-25
MEMO	Memo pad data	MEM0000.PNG - MEM0007.PNG	V9 → storage device	page 8-27
MSG	Message file	MSGxxyyy.BIN MSGxxyyy.TXT	V9 ← Storage	page 8-19 page 8-21
OPELOG	Operation log file	OPELOG_hhmmss.DB	V9 ← Storage V9 → Storage	page 8-26
PDF	PDF file	PDF00000.pdf to PDF99999.pdf (arbitrary filename).pdf ^{*3}	V9 ← Storage V9 → Storage	page 8-24
RECIPE	Recipe data	REC0000.CSV - REC9999.CSV (arbitrary filename).CSV ^{*3} REC0000.BIN - REC9999.BIN (arbitrary filename).BIN ^{*3}	V9 ← storage device V9 → storage device	page 8-25
SCRN	Header file	SCHEADER.BIN	V9 ← Storage	page 8-19
	Screen file	SC0000.BIN to SC9999.BIN		
	Component parts (Macro blocks)	MCR0000.BIN to MCR1023.BIN		
	Component parts (messages)	MSG0000.BIN to MSG0011.BIN		
	3D part file	3D0001.BIN to 3D1023.BIN		
	Windows font file (for screen creation)	WFS0000.BIN to WFS4095.BIN		
	Windows font file (messages)	WFM0000.BIN to WFM4095.BIN		
SNAP	Network camera snapshot image	VD00000.JPG - VD32767.JPG	V9 → storage device	page 8-26
SRAM	SRAM backup data	SRM0000.BIN	V9 ← storage device V9 → storage device	page 8-27
WAV	WAV files for audio output	WA0000.WAV - WA9999.WAV (arbitrary filename).WAV ^{*3}	V9 ← storage device	page 8-22

^{*1} When saving to a backup folder, the year, month, day, hour, minutes, and seconds (_yyyymmddhhmmss) are added to the end of the filename.

E.g.: ALARM00_20140320150040.BIN

^{*2} Temporary file during data update

^{*3} Filename: 64 or less one-byte uppercase alphanumeric characters or 32 or less two-byte characters

^{*4} Year, month, day, hour, minutes, seconds (_yyyymmddhhmmss) is added to the end of the filename.

E.g.: LIST0000_20140320150040.PDF

^{*5} BIN files only

Automatic upload (DSPDEF)

DSPDEF	Description	Filename	Transfer Direction	Refer to
DSP	File for automatic uploading	DSPDEF.bin	V9 ← storage device	page 8-9
Other folders	Same as the access folder			

OS update (OSUPDATE)

OSUPDATE	Description	Filename	Transfer Direction	Refer to
-	File for updating the operating system	fw.conf etc.	V9 ← storage device	page 8-11 page 8-15

8.3 Function Descriptions

8.3.1 List of Functions

The following table lists the functions used by storage devices. For details, refer to the corresponding reference.

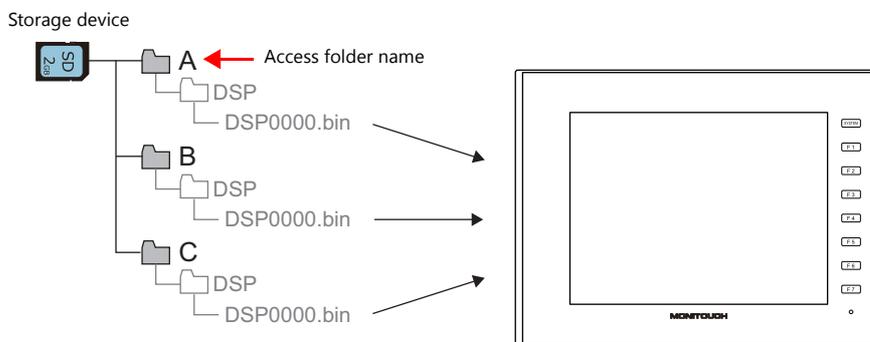
Function		Refer to
Saving and transferring screen programs		page 8-7
Automatically uploading screen programs		page 8-9
Manual OS updating		page 8-11
Automatic OS updating		page 8-15
Reduction of screen program data size	Storing pattern (bitmap) data	page 8-19
	Storing screen data	
	Storing 3D parts	
	Storing Windows fonts	
	Storing message data	
	Storing audio (WAV) files	page 8-22
Storing audio (WAV) files		page 8-22, "2 Sound"
Storing JPEG data		page 8-23, "Detail"
Storing PDF files		page 8-24, "13 PDF Viewer"
Recipe data		page 8-25, 15 "Recipes" in V9 Series Reference Manual 1
Saving alarm history		page 8-25, 8 "Alarms" in V9 Series Reference Manual 1
Saving logging data		page 8-25, 7 "Trends" in V9 Series Reference Manual 1
Operation logs		page 8-26, "4 Operation Log"
Saving screenshot images		page 8-26, V9 Series Macro Reference Manual
Saving network camera images		page 8-26, "1.3 Network Camera"
PDF output of data sheets		page 8-27, 16.3 "Printing Data Sheets" in V9 Series Reference Manual 1
Memo pad data backup		page 8-27, 13.1 "Memo Pad" in V9 Series Reference Manual 1
SRAM data backup		page 8-27, V9 Series Troubleshooting/Maintenance Manual

8.3.2 Screen Program Transfer

Screen programs can be transferred between the V9 series unit and a storage device.

Because multiple screen programs can be saved on a storage device, the screen program for display can be switched as required.

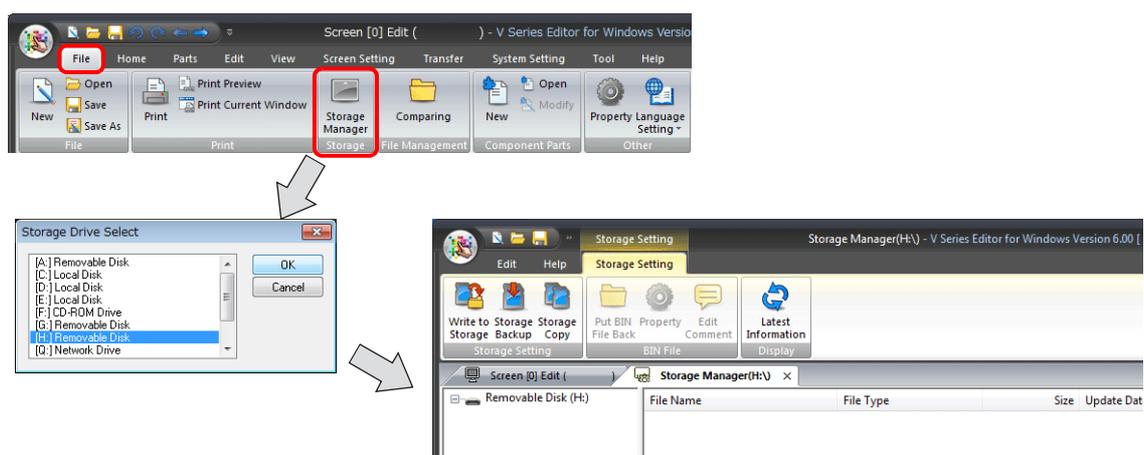
This section describes how to read and write data between a PC and a storage device. For details on reading and writing between a storage device and the V9 series unit, refer to the separate V9 Series Troubleshooting/Maintenance Manual.



Multiple screen programs can be stored using different access folder names.

PC → Storage Device Writing

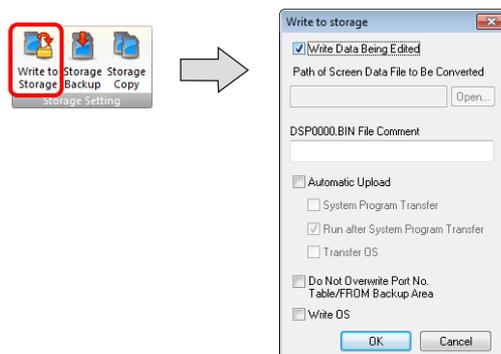
1. Start V-SFT.
2. Click [File] → [Storage Manager]. The window for specifying a drive is displayed.
3. Specify the drive where the storage device is inserted and click [OK]. The [Storage Manager] window^{*1} is displayed.



*1 Storage manager

The storage manager is an application that facilitates writing of V9 screen programs to a storage device, and importing of data from a storage device for conversion into other file formats. For details, refer to "8.4 Storage Manager" page 8-28.

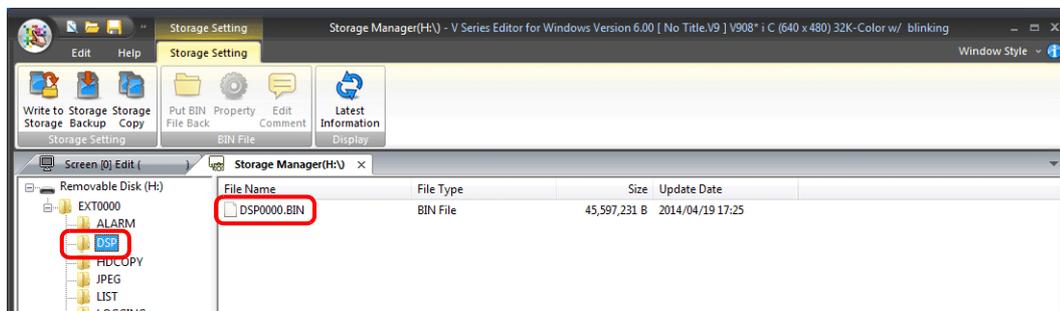
4. Click [Storage Setting] → [Write to Storage]. The [Write to storage] window is displayed. Configure the following settings.



Item	Description
Write Data Being Edited	Write the screen program that is open (being edited) in V-SFT.
Path of Screen Data File to Be Converted	Select the screen program for writing to the storage device from the [Open] button. [Screen Data File (*.V9)]

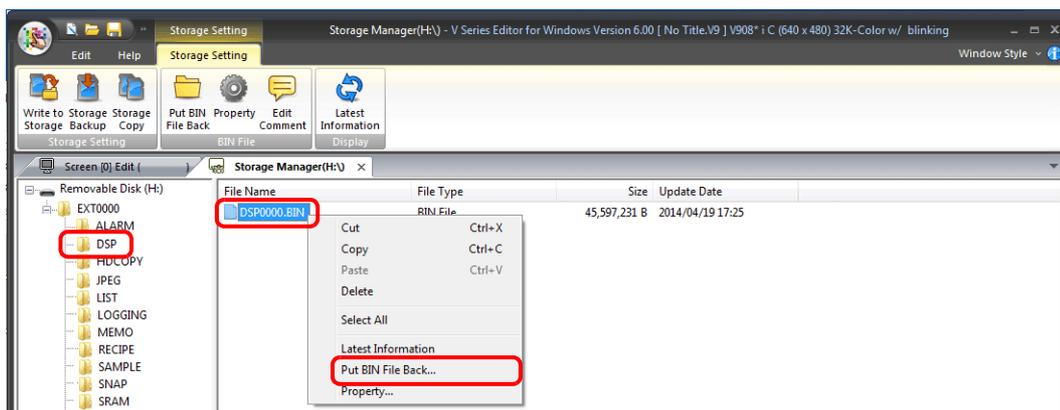
Item	Description
DSP0000.BIN File Comment	Add a comment to the screen program file (DSP0000.BIN) written to the storage device. This comment can be checked via the file's [Property] window.
Automatic Upload	(This is not for screen program transfer.)
Do Not Overwrite Port No. Table/FROM Backup Area	Select this checkbox to prevent existing values in the station number table or existing values in the FROM area from being changed when transferring a screen program from a storage device.

- When the settings are complete, click [OK]. A "DSP0000.BIN" file is saved to "(access folder)\DSP" on the storage device. The "DSP0000.BIN" file contains the screen program, system program, fonts, I/F driver etc.

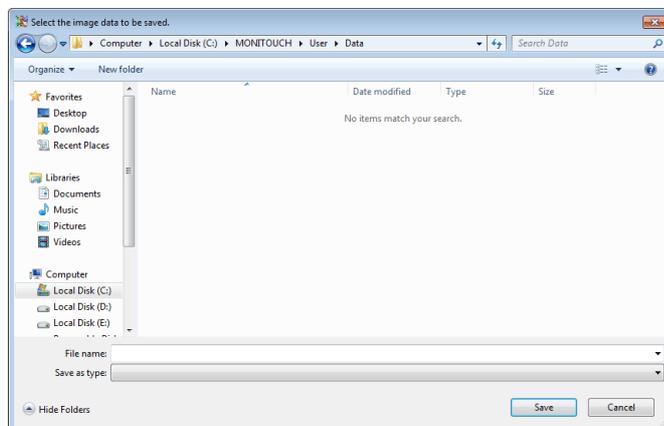


Storage Device → PC Reading

- Start V-SFT.
- Click [File] → [Storage Manager]. The window for specifying a drive is displayed.
- Specify the drive where the storage device is inserted and click [OK]. The [Storage Manager] window is displayed.
- Check that "DSP0000.BIN" exists in the "DSP" folder in the access folder, and select the file.
- Right-click on the file and select [Put BIN File Back].

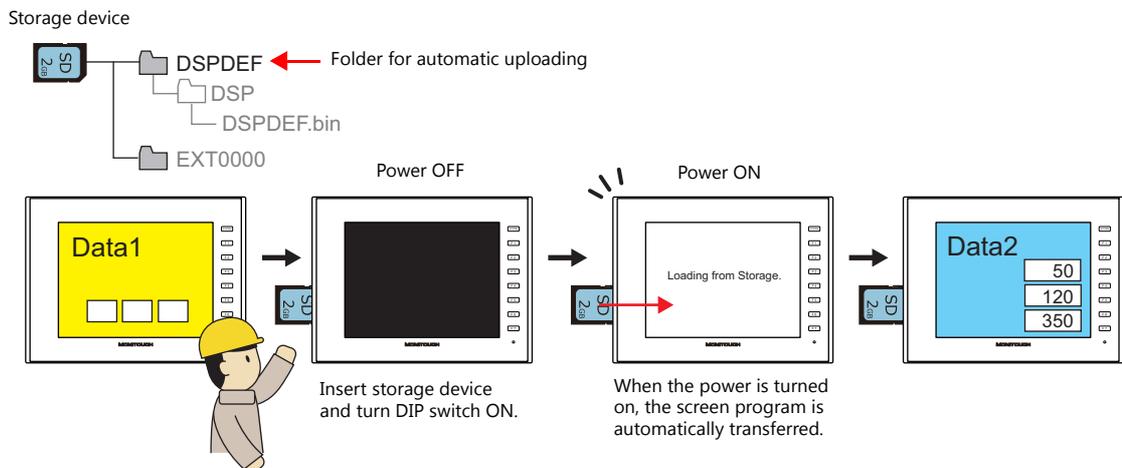


- The window shown below is displayed. Specify the folder to save in and the filename and click [Save].



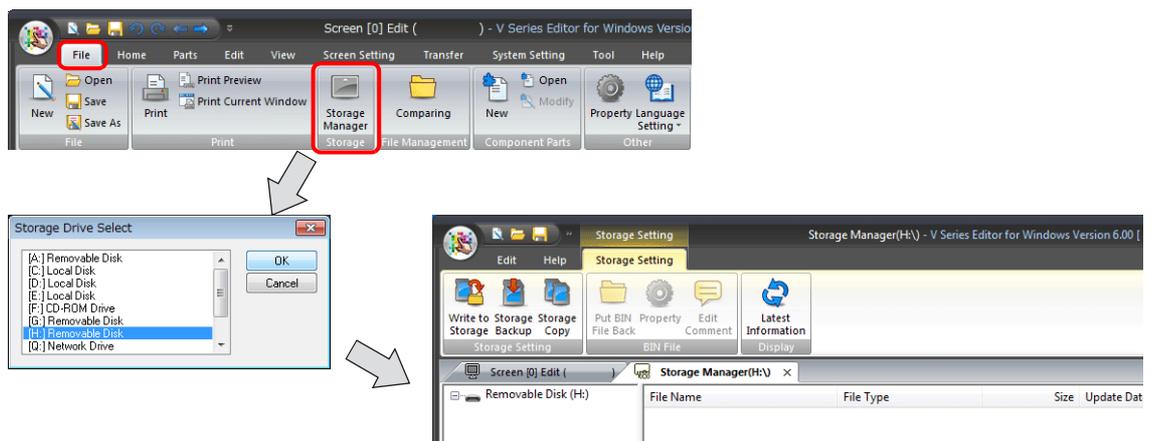
8.3.3 Automatically Uploading Screen Programs

When a storage device is inserted and the power is turned on, the screen program is automatically uploaded. This allows the screen program to be easily updated without bothering the operator.



PC → Storage Device Writing

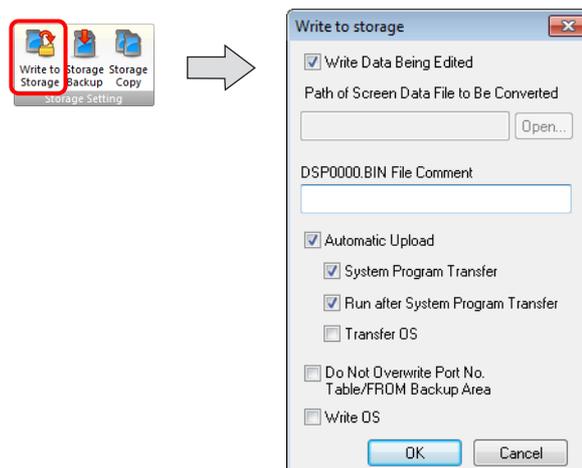
1. Start V-SFT.
2. Click [File] → [Storage Manager]. The window for specifying a drive is displayed.
3. Specify the drive where the storage device is inserted and click [OK]. The [Storage Manager] window ^{*1} is displayed.



^{*1} Storage manager

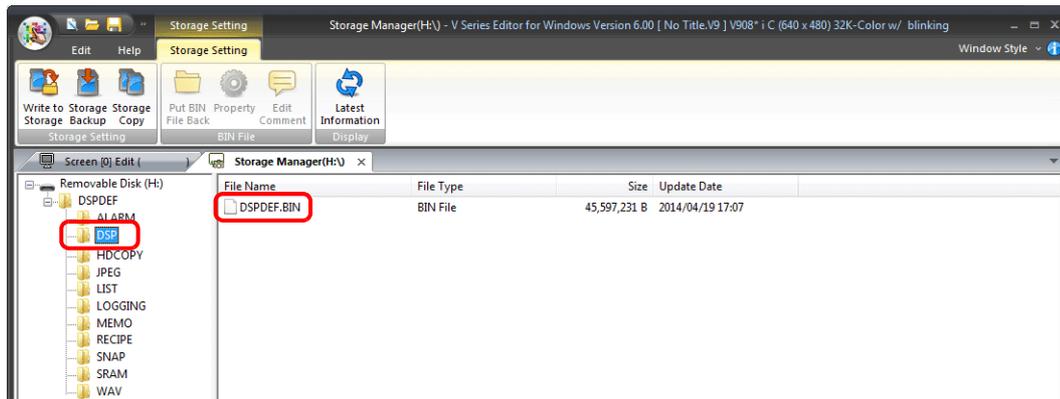
The storage manager is an application that facilitates writing of V9 screen programs to a storage device, and importing of data from a storage device for conversion into other file formats. For details, refer to ["8.4 Storage Manager" page 8-28](#).

4. Click [Storage Setting] → [Write to Storage]. The [Write to storage] window is displayed. Configure the following settings.



Item	Description
Write Data Being Edited	Write the screen program that is open (being edited) in V-SFT.
Path of Screen Data File to Be Converted	Select the screen program for writing to the storage device from the [Open] button. [Screen Data File (*.V9)]
DSP0000.BIN File Comment	Add a comment to the screen program file (DSP0000.BIN) written to the storage device. This comment can be checked via the file's [Property] window.
Automatic Upload	Create an automatic upload file.
System Program Transfer	Select this checkbox when uploading system program files together with the screen program.
Run after System Program Transfer	Automatically switch MONITOUCH to RUN mode after automatic upload is complete.
Do Not Overwrite Port No. Table/FROM Backup Area	Select this checkbox to prevent existing values in the station number table or existing values in the FROM area from being changed when transferring a screen program from a storage device.

- When the settings are complete, click [OK]. A "DSPDEF.BIN" file is saved to "DSPDEF\DSP". The "DSPDEF.BIN" file contains the screen program, system program, fonts, I/F driver etc.



Operation on the V9 Series

After storing data on the storage device, import the data into the V9 series unit according to the following procedure.

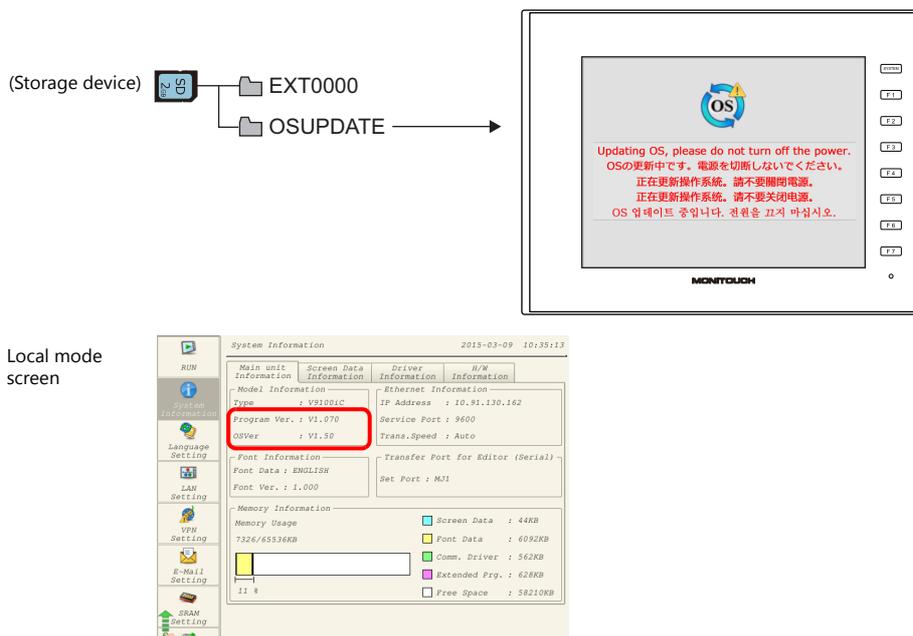
- Turn off the V9 series unit.
- Set DIPSW1 on the V9 series unit to ON.
- Insert the storage device into the V9 series unit.
- Turn on power to the V9 series unit. After a "Data Loading" message, a "Loading from Storage" message is displayed, and then the screen program saved to the storage device is written.
When transfer is complete, the RUN screen (or Local mode) is displayed automatically.

Notes on Write Operations

- When using the "DSPDEF" screen program for automatic uploading, only one type of data can be stored per storage device.
- If the storage device is removed after automatic uploading and the power is turned off and on again, the message "Insert Storage in V9." is displayed and the V9 series unit does not start correctly. Insert the storage device or set DIPSW1 to OFF, and then turn the power off and back on.
- Once automatic uploading has been performed, the screen program that was written to the V9 series unit (including I/F drivers, fonts, etc.) is overwritten by the screen program that was automatically uploaded. Note that even if the storage device is removed and DIPSW1 is set to OFF again, it is not possible to restore the state before to the upload.

8.3.4 Manually Updating the Operating System

This section describes the procedure for manually updating the operating system for operating the V9 series unit. The operating system version can be checked from the System Information screen in Local mode on the V9 series unit.

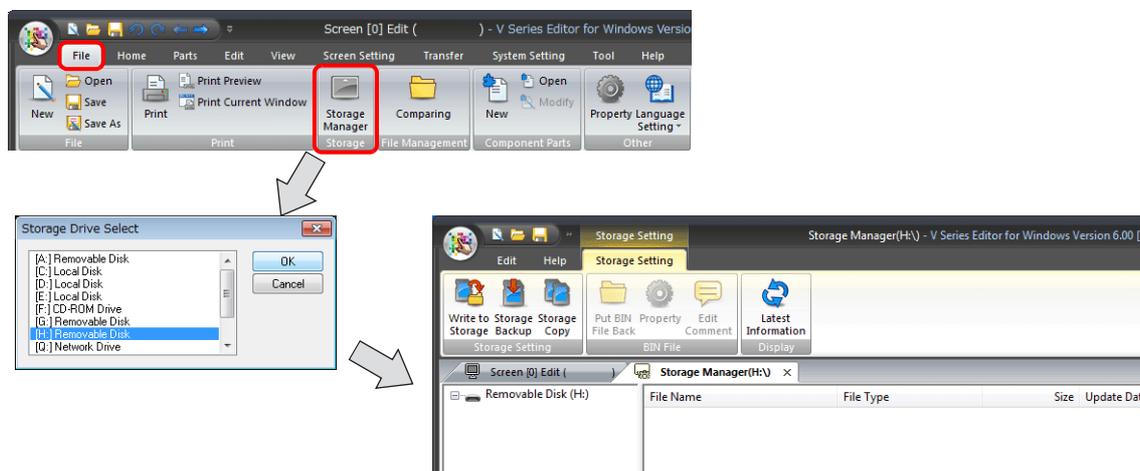


Notes

- Before updating the operating system, creating a backup of the screen program and other data such as SRAM data is recommended to guard against data loss.
- When the operating system is updated the system program is automatically updated as well.
- It takes approximately two minutes to update the operating system. During the update, never turn off the power of the V9 series unit or remove the storage device.
- When both an SD card and a USB flash drive are connected to the V9 series unit, the SD card takes priority.
- Only one instance of the "OSUPDATE" folder, which is used for updating the operating system, can be stored per storage device.

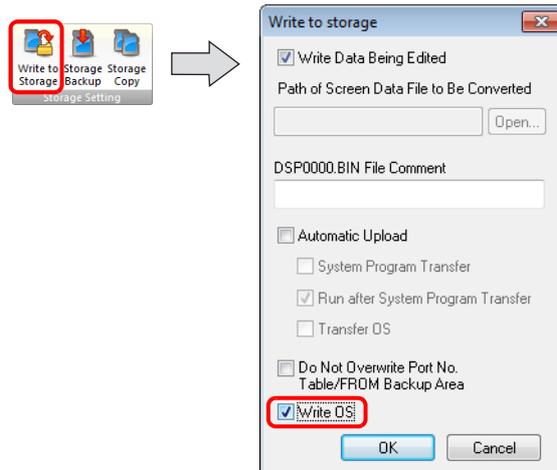
PC → Storage Device Writing

1. Start V-SFT.
2. Click [File] → [Storage Manager]. The window for specifying a drive is displayed.
3. Specify the drive where the storage device is inserted and click [OK]. The [Storage Manager] window^{*1} is displayed.



*1 Storage manager
The storage manager is an application that facilitates writing of V9 screen programs to a storage device, and importing of data from a storage device for conversion into other file formats. For details, refer to "8.4 Storage Manager" page 8-28.

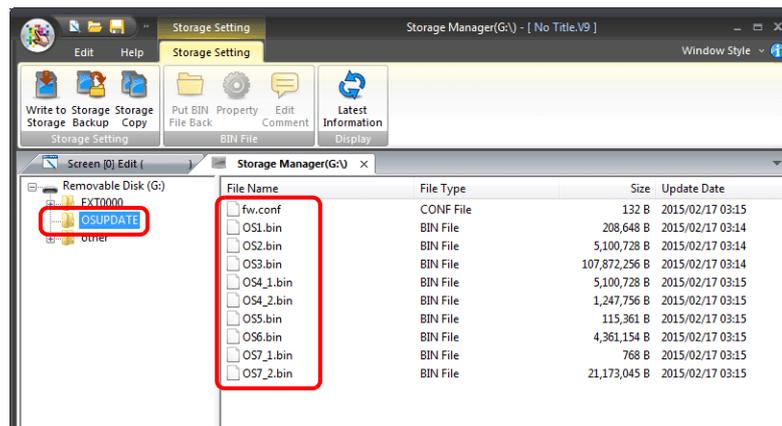
- Click [Storage Setting] → [Write to Storage]. The [Write to storage] window is displayed. Configure the following settings.



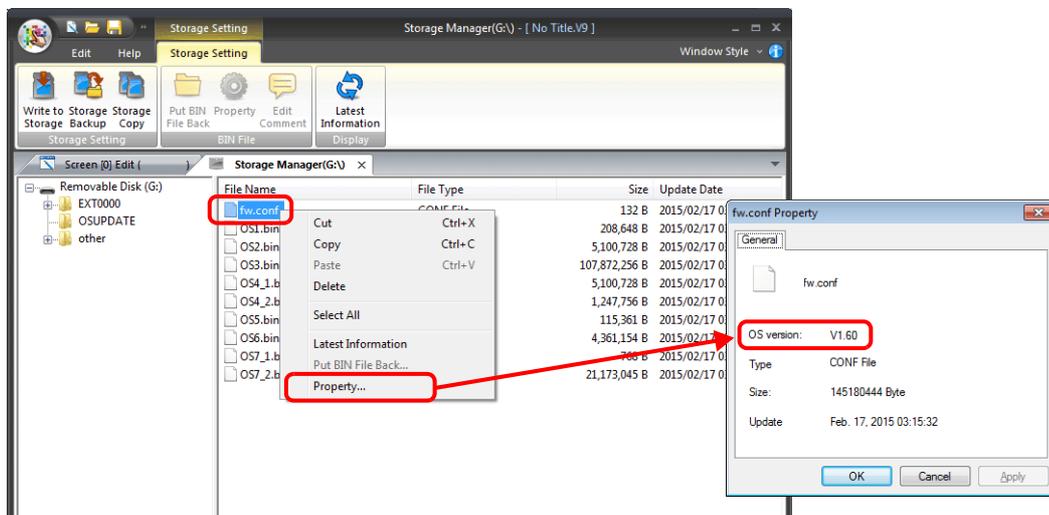
Item	Description
Write Data Being Edited *1	Write the screen program that is open (being edited) in V-SFT.
Path of Screen Data File to Be Converted *1	Select the screen program for writing to the storage device from the [Open] button. [Screen Data File (*.V9)]
Write OS	Select this checkbox to enable manual updating.

*1 Selection of a screen program is necessary. Operating system data can only be written together with a screen program.

- When the settings are complete, click [OK]. The following files are saved to the "OSUPDATE" folder.



Click on [Property] on the right-click menu of the "fw.conf" file to view the operating system version.

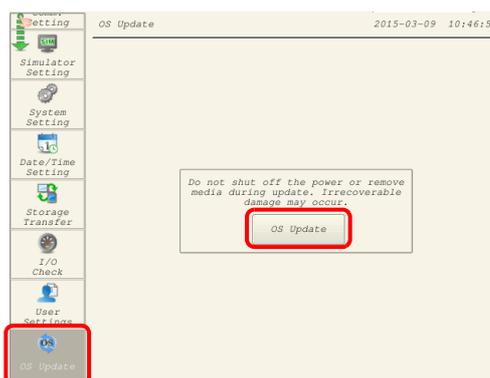


Operation on the V9 Series

After writing the data on a storage device, update the operating system according to the following procedure.

1. Turn off the V9 series unit.
2. Connect the storage device to the V9 series unit.
3. Press the [SYSTEM] switch to display the system menu and then press the [Local] switch. The V9 series unit switches to Local mode.
4. Check the [Program Ver.] and [OSVer] on the System Information screen.
5. Press the [OS Update] menu switch on the OS Update screen ^{*1}.

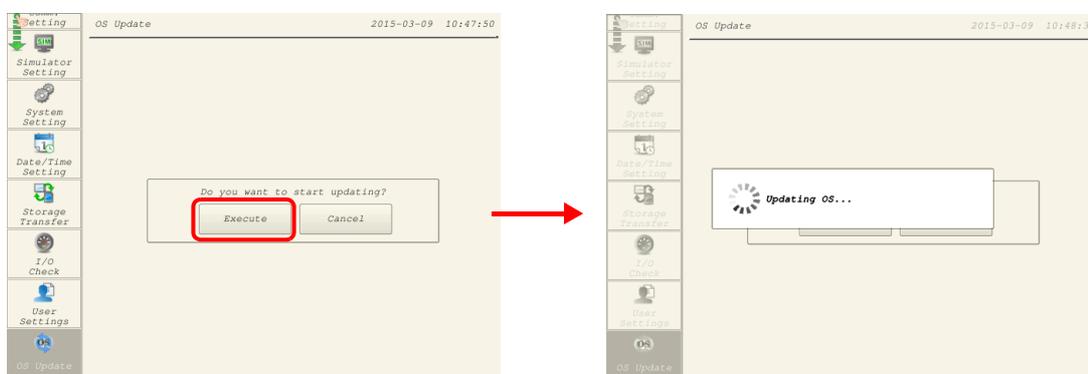
*1 The [OS Update] menu switch is displayed at the very bottom of the menu switches only when a storage device containing an "OSUPDATE" folder is connected.



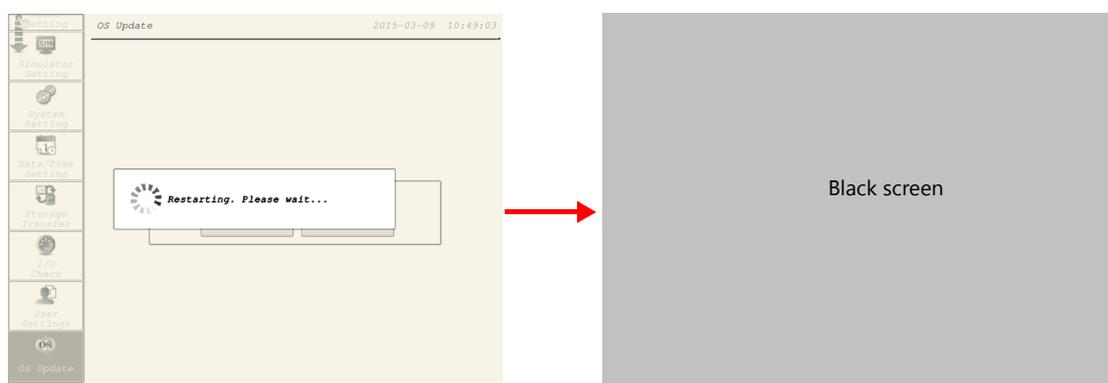
6. The following confirmation dialog appears. Press [Execute]. Updating of the operation system starts.



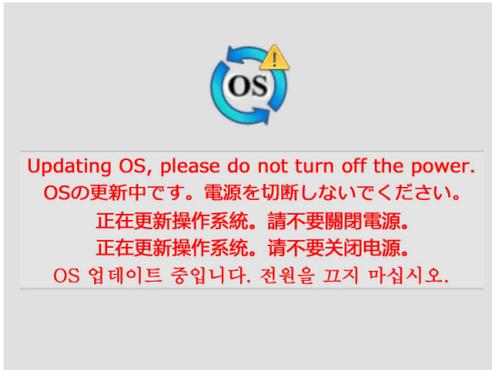
While the operating system is being updated, never turn off the power of the V9 series unit or remove the storage device.



7. The V9 series unit reboots and the screen will be black for about five seconds.



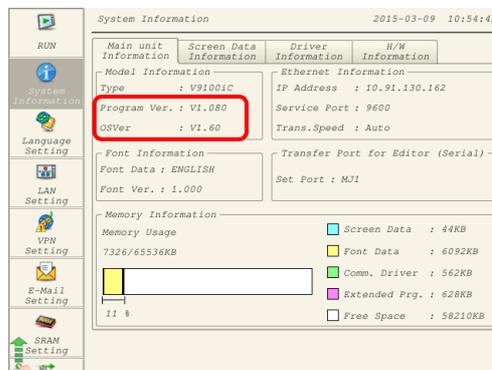
8. The following screen is displayed while the operating system is being updated.



9. When the update completes without any errors, the following screen is displayed and the V9 series unit automatically reboots.



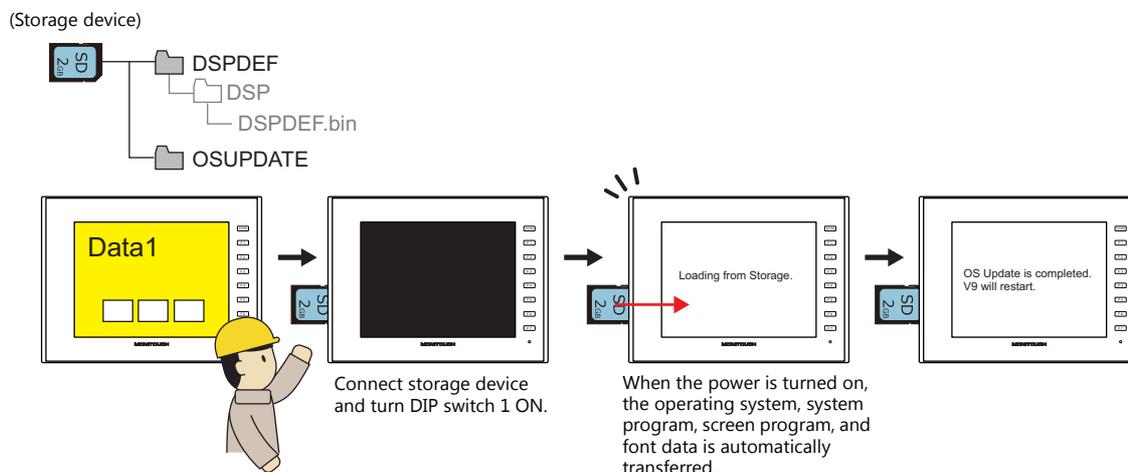
10. Press the [SYSTEM] switch and switch to Local mode from the displayed system menu. Check that the [Program Ver.] and [OSVer] have respectively been updated.



8.3.5 Automatically Updating the Operating System

This section describes the procedure for automatically updating the operating system for operating the V9 series unit. The operating system and system program can be updated automatically by connecting a storage device to the V9 series unit and turning the power on.

The operating system version can be checked from the System Information screen in Local mode on the V9 series unit.

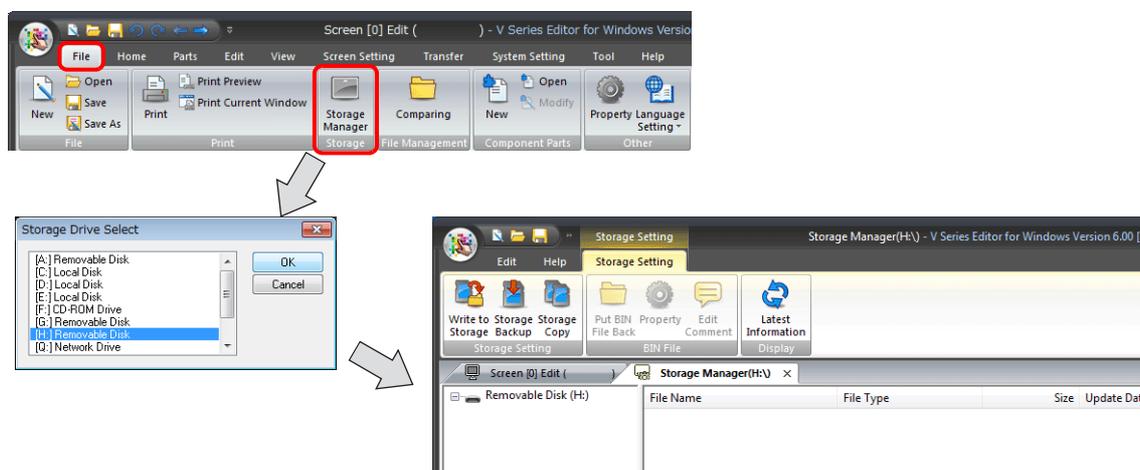


Notes

- Before updating the operating system, creating a backup of the screen program and other data such as SRAM data is recommended to guard against data loss.
- When the operating system is updated the system program is automatically updated as well.
- It takes approximately two minutes to update the operating system. During the update, never turn off the power of the V9 series unit or remove the storage device.
- When both an SD card and a USB flash drive are connected to the V9 series unit, the SD card takes priority.
- If the storage device is removed with DIP switch 1 left ON after automatic updating and the power is turned off and on again, the message "Insert Storage in V9." is displayed and the V9 series unit does not start correctly. If the storage device is left connected with DIP switch 1 left ON and the power is turned off and on again, automatic updating is performed again. Be sure to set DIP switch 1 to OFF after updating and then turn on the power.

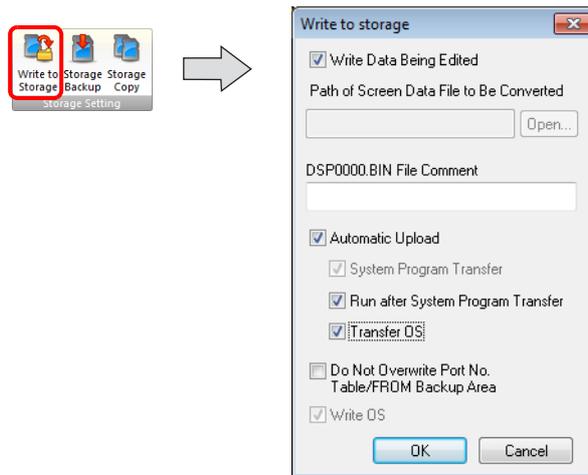
PC → Storage Device Writing

1. Start V-SFT.
2. Click [File] → [Storage Manager]. The window for specifying a drive is displayed.
3. Specify the drive where the storage device is inserted and click [OK]. The [Storage Manager] window^{*1} is displayed.



^{*1} Storage manager
The storage manager is an application that facilitates writing of V9 screen programs to a storage device, and importing of data from a storage device for conversion into other file formats. For details, refer to "8.4 Storage Manager" page 8-28.

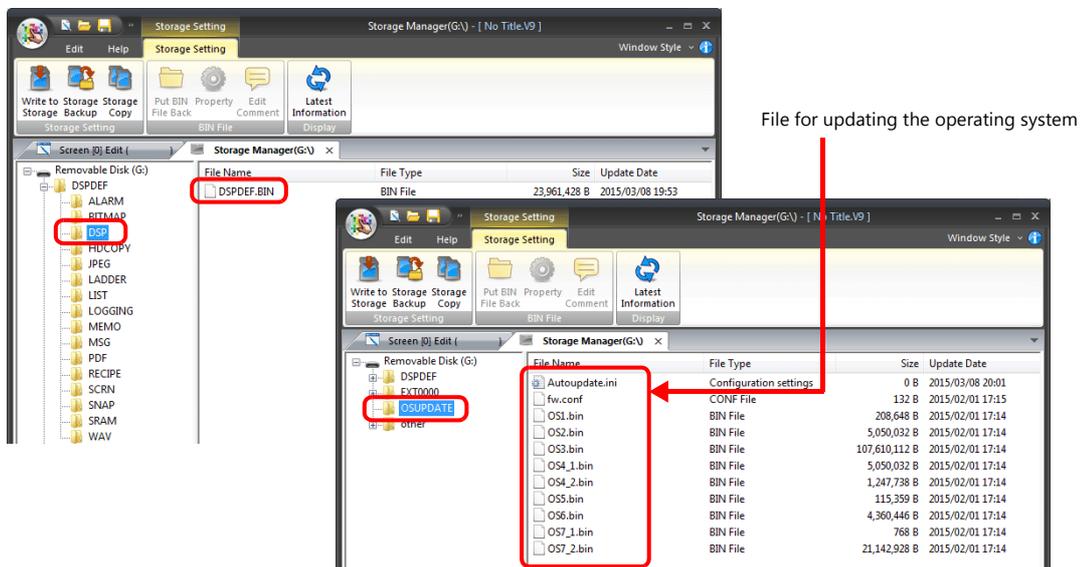
- Click [Storage Setting] → [Write to Storage]. The [Write to storage] window is displayed. Configure the following settings.



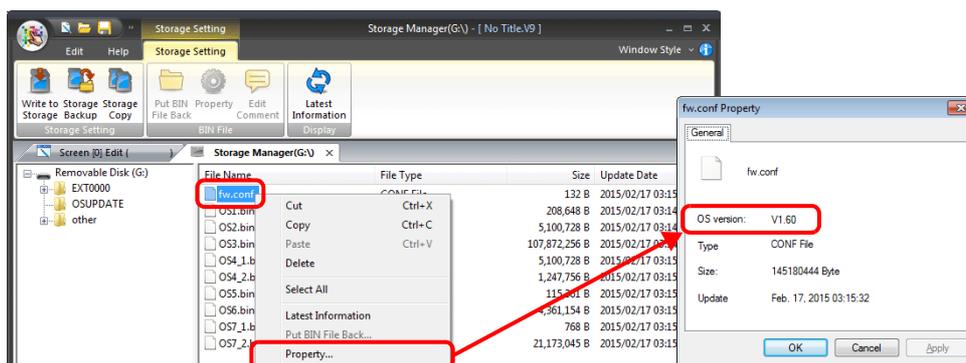
Item	Description
Write Data Being Edited *1	Write the screen program that is open (being edited) in V-SFT.
Path of Screen Data File to Be Converted *1	Select the screen program for writing to the storage device from the [Open] button. [Screen Data File (*.V9)]
Automatic Upload	Create an automatic upload file.
Transfer OS	Select this checkbox when transferring the operating system together with the screen program. The system program is transferred as well.

*1 Selection of a screen program is necessary. Operating system data can only be written together with a screen program.

- When the settings are complete, click [OK]. A "DSPDEF.BIN" file is saved to "DSPDEF\DSP". The "DSPDEF.BIN" file contains the screen program, system program, fonts, I/F driver etc. The following files are saved to the "OSUPDATE" folder.



Click on [Property] on the right-click menu of the "fw.conf" file to view the operating system version.



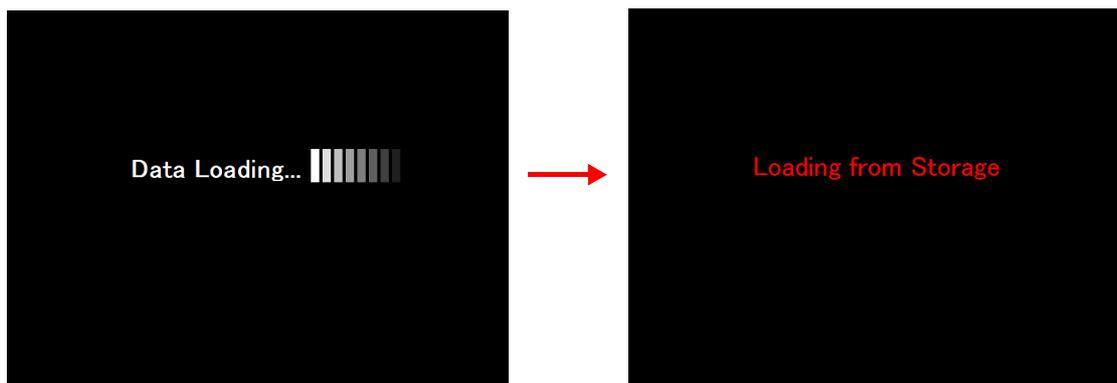
Operation on the V9 Series

After writing the data on a storage device, update the operating system according to the following procedure.

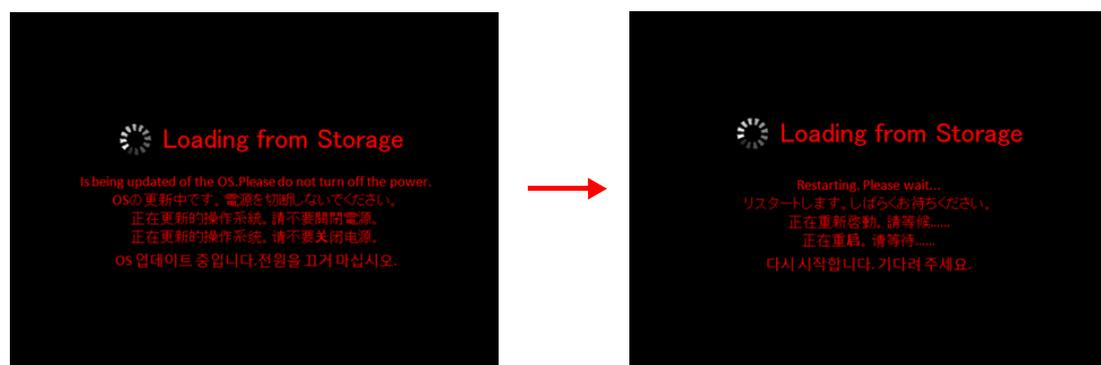
1. Turn off the V9 series unit.
2. Connect the storage device to the V9 series unit.
3. Set DIPSW1 on the V9 series unit to ON.
4. Turn on power to the V9 series unit. A "Data Loading..." message is displayed.
 - * After the "Data Loading..." message, a "Loading from Storage" message may be displayed.



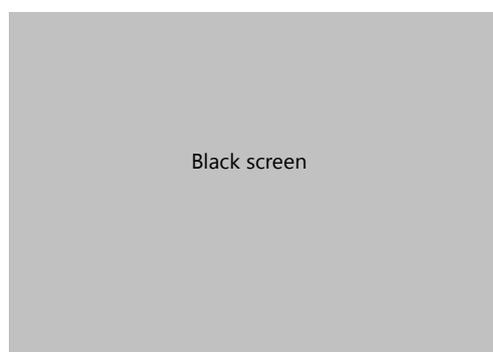
While update is in progress, never turn off the power of the V9 series unit or remove the storage device.



5. The following message appears.



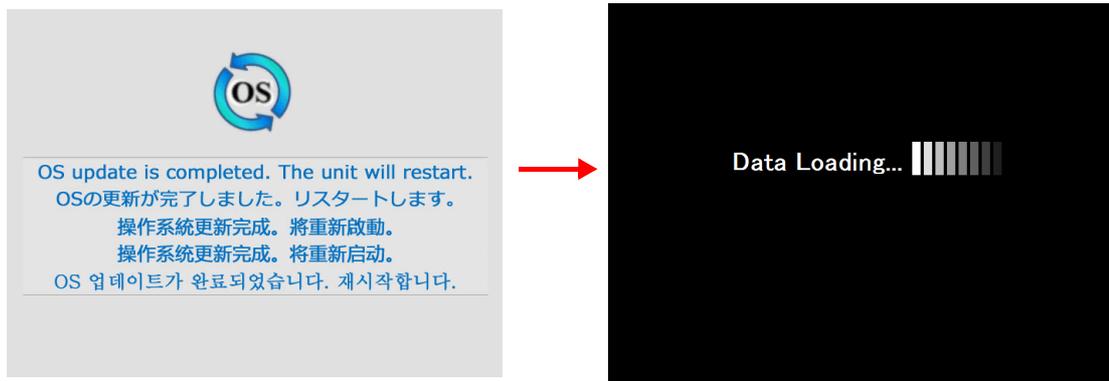
6. The screen turns black for about five seconds.



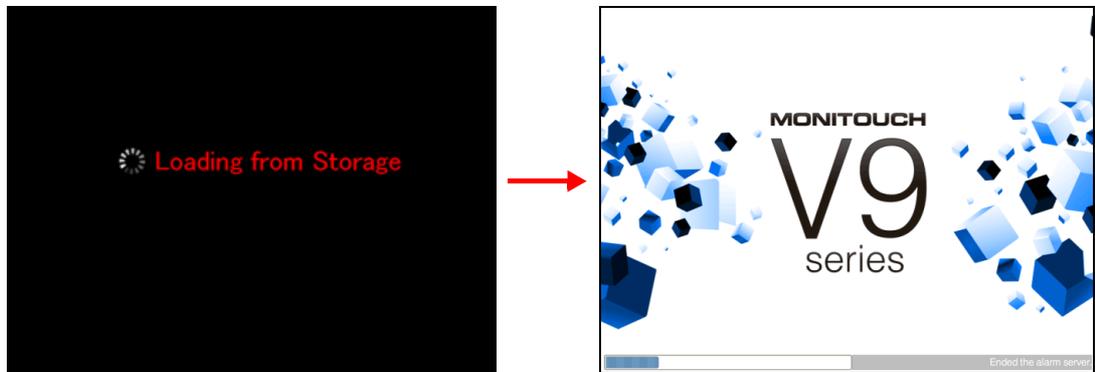
7. The following screen is displayed while the operating system is being updated.



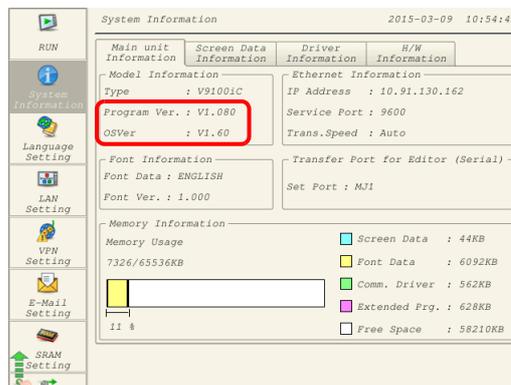
8. When the update completes without any errors, the following screen is displayed and the V9 series unit automatically reboots.



9. The "Loading from Storage" message is displayed again, and then the screen program saved to the storage device is written. When transfer is complete, the V9 series unit automatically switches to RUN mode.



10. Switch to Local mode from the system menu. Check that the [Program Ver.] and [OSVer] have respectively been updated.



8.3.6 Reducing Screen Program Data Size

Part of the screen program data, such as screens, patterns, or messages can be stored to a storage device. This can reduce the size of the actual screen program data.

- Pattern files (bitmap)
- Messages (BIN files, TXT files ^{*1})
- Screens (4,000 maximum)
- 3D parts
- Windows fonts

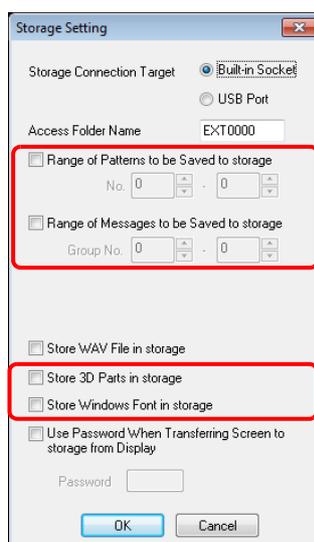
*1 Messages can be saved to a storage device as a BIN file or TXT file. For details on saving a TXT file, refer to "8.3.7 Storing Messages (TXT Files)" page 8-21.

File Storage Target and Filename

Item		Filename	Storage target
Patterns		BMPxxxx.BIN (xxxx: 0000 to 1023)	(Access folder)\BITMAP
Messages (BIN)		MSGyyyy.BIN (xx: Language number 00 to 16) (yyy: Message group number 000 to 127)	(Access folder)\MSG
Screens 3D parts Windows fonts	Header	SCHEADER.BIN	(Access folder)\SCRN
Screens	-	SCxxxx.BIN (xxxx: 0 to 9999)	
	Component parts (Macro blocks)	MCRxxxx.BIN (xxxx: 0 to 1023)	
	Component parts (Alarm messages)	MSGxxxx.BIN (xxxx: 0 to 11)	
3D parts		3Dxxxx.BIN (xxxx: 0 to 1023)	
Windows fonts	Graphics	WFSxxxx.BIN (xxxx: 0 to 4095)	
	Messages	WFMxxxx.BIN (xxxx: 0 to 4095)	

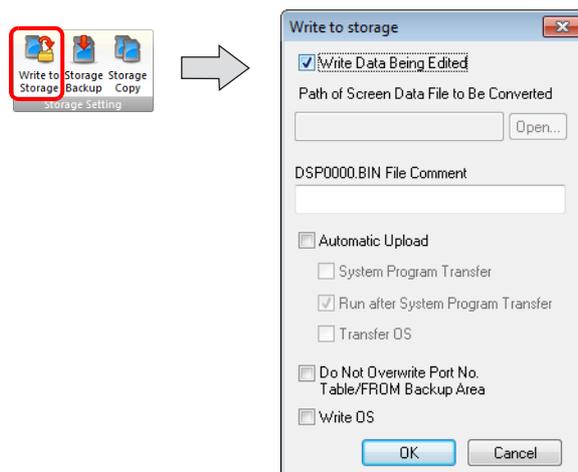
PC → Storage Device Writing

1. Configure the following settings on the screen program in advance. Click [System Setting] → [Storage Setting].
The [Storage Setting] window is displayed.
2. Select the items to save to the storage device. When the settings are complete, click [OK] and save the screen program file.



3. Click [File] → [Storage Manager]. The window for specifying a drive is displayed.
4. Specify the drive where the storage device is inserted and click [OK]. The [Storage Manager] window is displayed.

5. Click [Storage Setting] → [Write to Storage]. The [Write to storage] window is displayed.



6. If the screen program is currently being edited, select the [Write Data Being Edited] checkbox.
If the screen program is not the one currently opened with V-SFT, deselect the [Write Data Being Edited] checkbox and select the relevant screen program from the [Open] button.
7. When the settings are complete, click [OK]. The file is saved to the access folder.

Operation on the V9 Series

Connect a storage device to the V9 series unit. When opening a screen program on the V9 series unit, the storage device will automatically be referred to for showing the screen.

- If screen data is not stored correctly on the storage device or a storage device is not connected to the V9 series unit, the V9 series unit will operate as if there is no screen.
If calling a screen using a switch with [Screen Change-over] selected for [Function], a short intermittent beep will sound and the request will not be processed. If using a [Displaying Screen Device] from the PLC to specify a screen, the screen will not changeover. (If immediately after power-on, the screen with the smallest number will be displayed.)
- If 3D parts are not stored correctly on the storage device or the storage device is not connected to the V9 series unit, 3D parts will not be displayed.
- If Windows fonts are not stored correctly on the storage device or the storage device is not connected to the V9 series unit, Windows fonts will not be displayed.
- If patterns are not stored correctly on the storage device or the storage device is not connected to the V9 series unit, patterns will not be displayed.
- When both BIN files (MSGxyyy.BIN) and TXT files (MSGxyyy.TXT) coexist in the "MSG" folder on the storage device, reference to TXT files takes priority.
- Screen data stored in a storage device takes longer to display than data stored in the MONITOUCH flash memory.

Notes on File Storage

- Up to 512 KB of screen data can be saved to a storage device per screen. The per screen data size can be viewed at [Tool] → [List of Memory Use]. However, the size of the screen data that was selected for storage at [System Setting] → [Other] → [Storage Setting] cannot be viewed on the [List of Memory Use] tab window. We recommend checking the data size before configuring [Storage Setting].
- For the restoration of the screen data in the "SCRN" folder to the original data file (.V9), the "DSP0000.BIN" file in the "DSP" folder is required. However, if data information of "DSP0000.BIN" in the "DSP" folder and "SCHEADER.BIN" in the "SCRN" folder do not match, the compilation of files from these folders does not take place, and thus the screen program is created with screen data in the "SCRN" folder omitted. For details on the conversion procedure, refer to ["BIN File Conversion" page 8-30](#).

8.3.7 Storing Messages (TXT Files)

Messages (in TXT file format) can be stored on a storage device to reduce the size of the screen program. Since the messages are in TXT file format, they can be edited even without V-SFT.

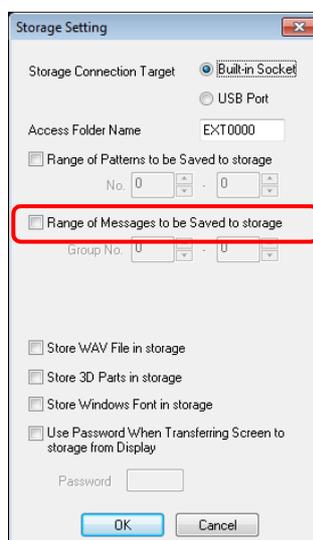
- * Message files can be stored in BIN and TXT file formats. For details on storing BIN files, refer to "8.3.6 Reducing Screen Program Data Size" page 8-19.

File Storage Target and Filename

Item	Filename	Storage target
Messages (TXT format)	MSGxxyy.TXT (xx: Language number 00 to 16) (yy: Message group number 000 to 127)	(Access folder)\MSG

PC → Storage Device Writing (For TXT Files)

1. Configure the following settings on the screen program in advance. Click [System Setting] → [Storage Setting]. The [Storage Setting] window is displayed.
2. Select the [Range of Messages to be Saved to storage] checkbox and specify the range of messages to be stored. When the settings are complete, click [OK] and save the screen program file.



3. Create files in TXT file format.
Filename: MSGxxyy.txt (xx: Language number 00 to 16, yy: Message group number 000 to 127 ^{*1})
*1 TXT files must be created in accordance with the message group numbers specified in the [System Setting] → [Storage Setting] window.
Any TXT file with a number not within the specified range will not be recognized.
4. Save "MSGxxyy.TXT" files to the "MSG" folder under the access folder.

Operation on the V9 Series

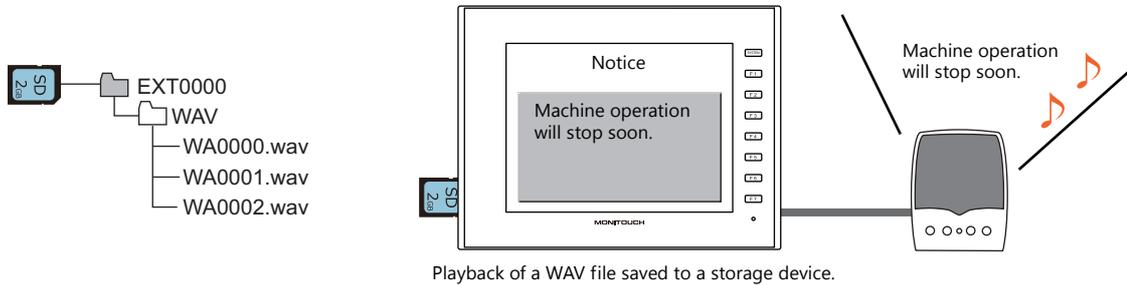
Connect the storage device to the V9 series unit. When the screen program is displayed, the stored messages are displayed accordingly.

- * When both BIN files (MSGxxyy.BIN) and TXT files (MSGxxyy.TXT) coexist in the "MSG" folder on the storage device, reference to TXT files takes priority.

8.3.8 Storing Audio (WAV) Files

There are two methods for storing audio files used by the audio playback function: importing audio into the screen program or storing separately on a storage device.

The size of the screen program can be reduced by storing audio on a storage device.



WAV File Storage Target and Filename

Files saved at the following location can be played.

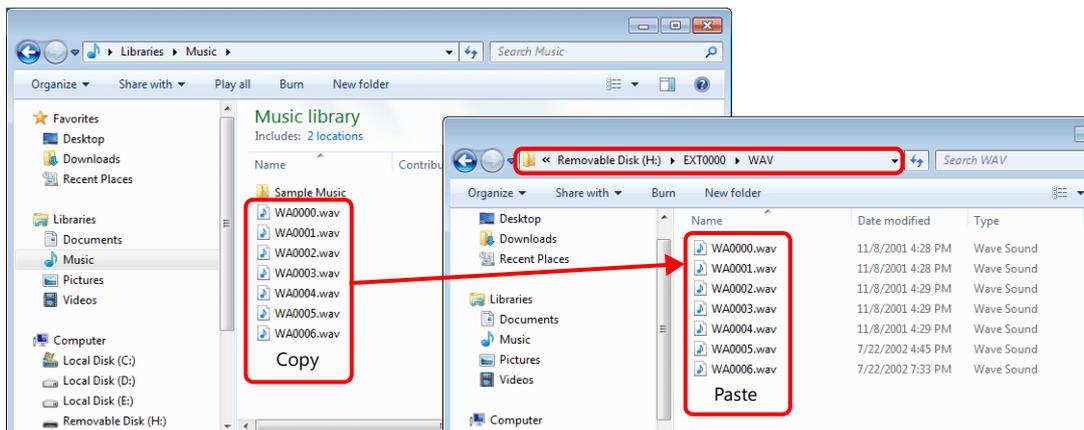
Filename	Storage target
WAxxxx.wav (xxxx: 0000 to 1023) xxxxxxx.wav (64 or less one-byte characters or 32 or less two-byte characters)	(Access folder)\WAV

Storing Files on a Storage Device

Either Windows Explorer or the storage manager can be used to store files.

Windows explorer

1. Select the WAV file in Windows Explorer.
2. Execute [Copy] from the right-click menu.
3. Open the storage device drive using Windows Explorer and paste the file.



Storage manager

1. Store the WAV file to be used in “\MONITOUCH\User\WAV” on the PC in advance.
2. Click [File] → [Storage Manager] and write to storage using [Write to Storage].

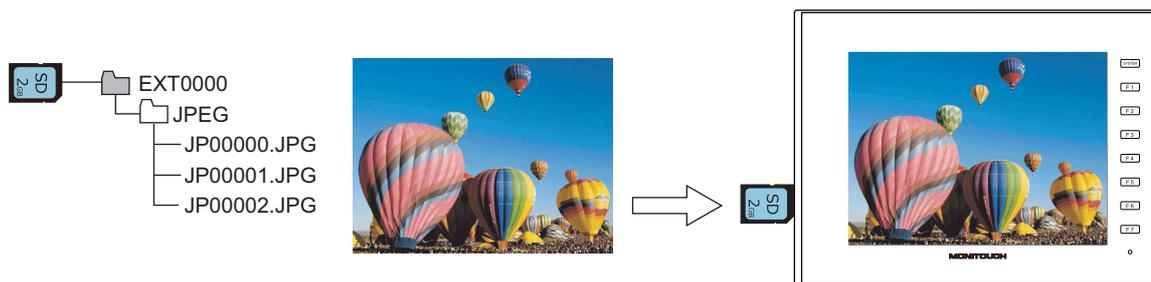
[“8.4 Storage Manager” page 8-28](#)

Operation on the V9 Series

Insert the storage device into the V9 series unit. Audio playback is available in RUN mode.

8.3.9 Storing JPEG Files

JPEG files can be displayed on the V9 series unit. Always store JPEG files on a storage device.



Displaying a JPEG file stored on the storage device on the screen.

JPEG File Storage Target and Filename

Audio files are stored in the following location.

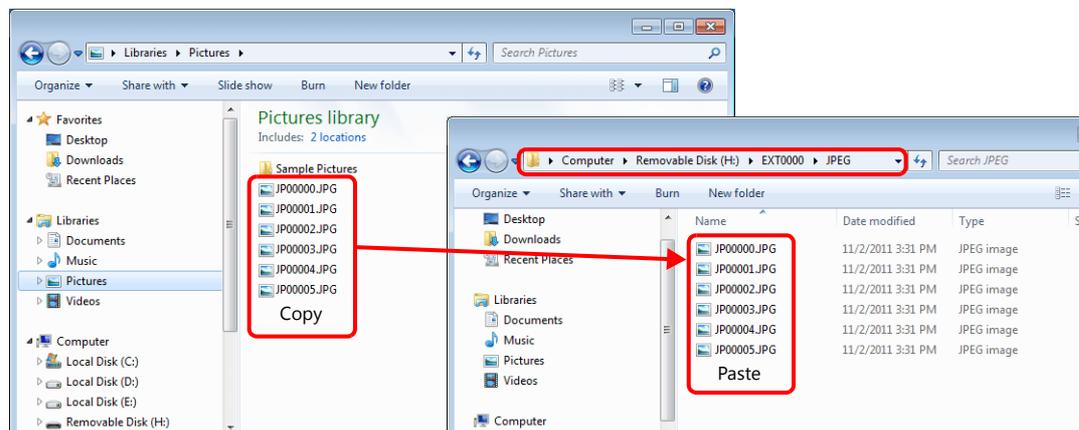
Filename	File Storage Target
JPxxxx.jpg (xxxx: 00000 to 32767) xxxxxxx.jpg (64 or less one-byte characters or 32 or less two-byte characters)	(Access folder)\JPEG

Storing Files on a Storage Device

Either Windows Explorer or the storage manager can be used to store files.

Windows explorer

1. Select the JPEG file in Windows Explorer.
2. Execute [Copy] from the right-click menu.
3. Open the storage device drive using Windows Explorer and paste the file.



Storage manager

1. Store the JPEG file to be used in "\MONITOUCH\User\jpeg" on the PC in advance.
2. Click [File] → [Storage Manager] and write to storage using [Write to Storage].

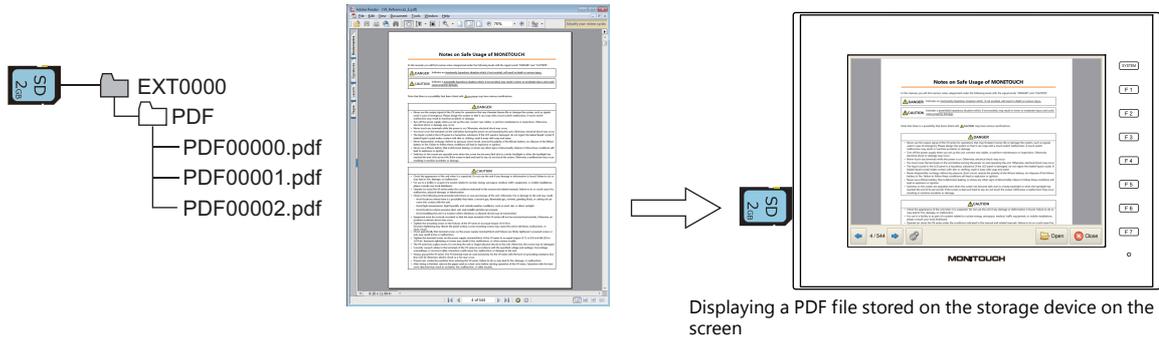
 ["8.4 Storage Manager" page 8-28](#)

Operation on the V9 Series

Insert the storage device into the V9 series unit. The JPEG file on the storage device is displayed in RUN mode.

8.3.10 Storing PDF Files

PDF files can be displayed on the V9 series unit. Always store PDF files on a storage device.



PDF File Storage Target and Filename

Files are stored in the following location.

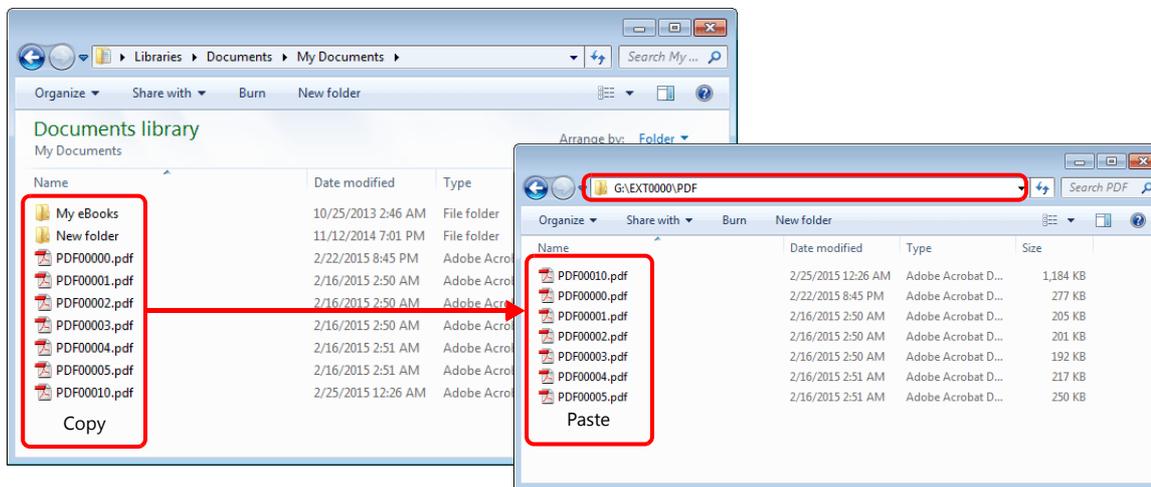
Filename	File Storage Target
PDFxxxx.PDF (xxxx: 00000 to 99999) xxxxxxx.pdf (64 or less one-byte characters or 32 or less two-byte characters)	(Access folder)\PDF

Storing Files on a Storage Device

Either Windows Explorer or the storage manager can be used to store files.

Windows Explorer

1. Select PDF files in Windows Explorer.
2. Execute [Copy] from the right-click menu.
3. Open the storage device drive using Windows Explorer and paste the file.



Storage manager

1. Store the PDF files to be used in "\MONITOUCH\User\PDF" on the PC in advance.
2. Click [File] → [Storage Manager] and write the selected files to the storage device using [Write to Storage].

["8.4 Storage Manager" page 8-28](#)

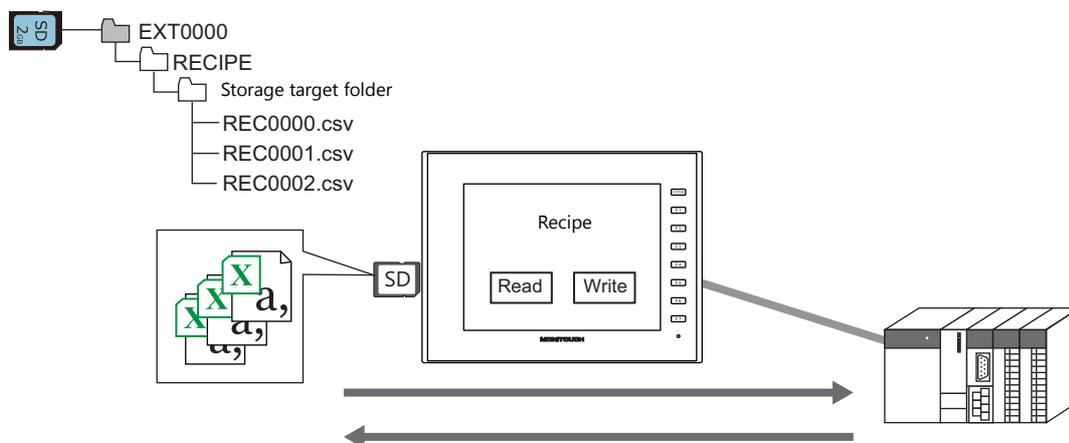
Operation on the V9 Series

Connect the storage device to the V9 series unit. The PDF files saved to the storage device are displayed on the screen using the PDF viewer.

["13 PDF Viewer"](#)

8.3.11 Transferring Recipe Data

Recipe files (BIN/CSV) created on the PC can be stored on a storage device and read or written using a transfer command bit or a switch with [Recipe] set for [Function].



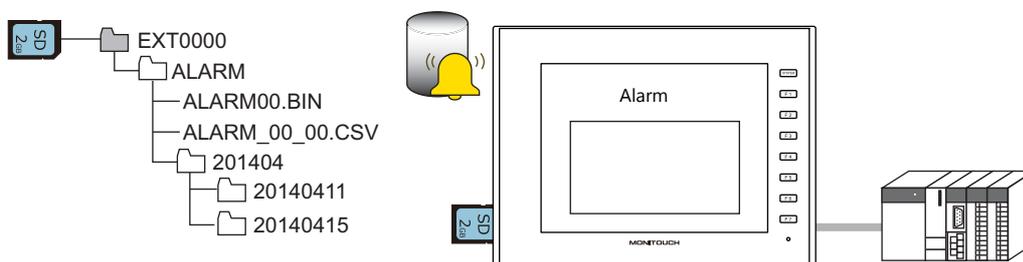
☞ Refer to "15 Recipes" in the V9 Series Reference Manual 1.

8.3.12 Saving Alarm History

Alarm history and event history can be saved to a backup folder.

BIN files in the backup folder can be switched between for display on the V9 series unit and CSV files can be readily checked and edited on a PC.

The storage targets for the latest history data and backup files can be divided over, for example, an SD card and a USB flash drive.



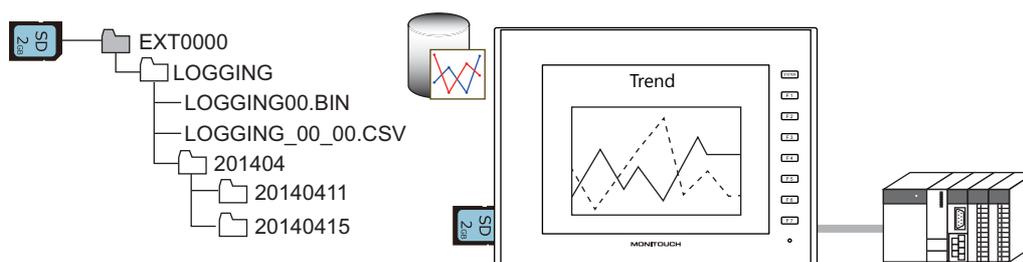
☞ Refer to "8 Alarm" in the V9 Series Reference Manual 1.

8.3.13 Saving Logging Data

History data that contains numeric values and text can be saved to a backup folder.

BIN files in the backup folder can be switched between for display on the V9 series unit and CSV files can be readily checked and edited on a PC.

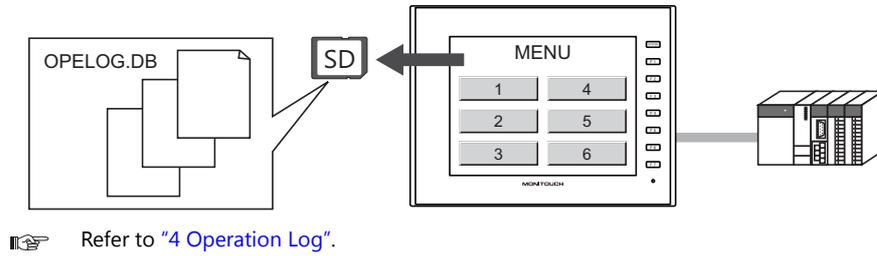
The storage targets for the latest history data and backup files can be divided over, for example, an SD card and a USB flash drive.



☞ Refer to "7 Trends" in the V9 Series Reference Manual 1.

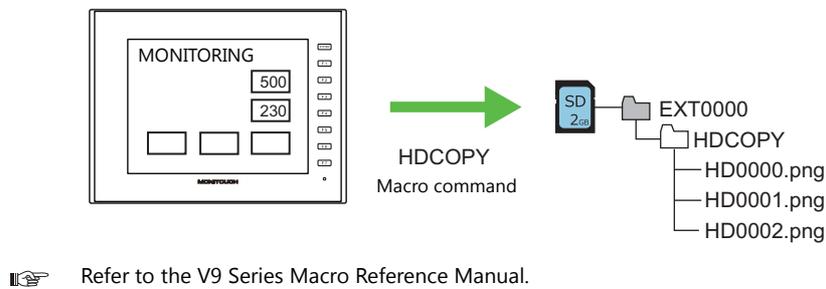
8.3.14 Operation Logs

Screen operation history records (operation logs) can be output to a storage device. In the event of an error, these stored logs allow previous operations to be examined in order to determine the cause of the error.



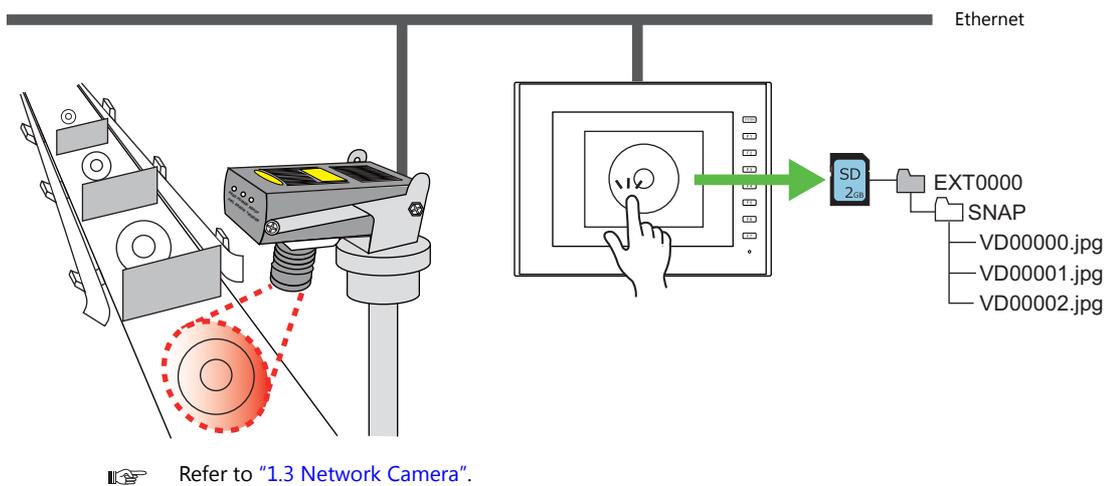
8.3.15 Saving Screenshot Images

Screenshot images can be saved to a storage device as PNG files using a macro command. When it is difficult to connect a printer on the factory floor, screenshot images can be saved to a storage device and printed later from a PC.



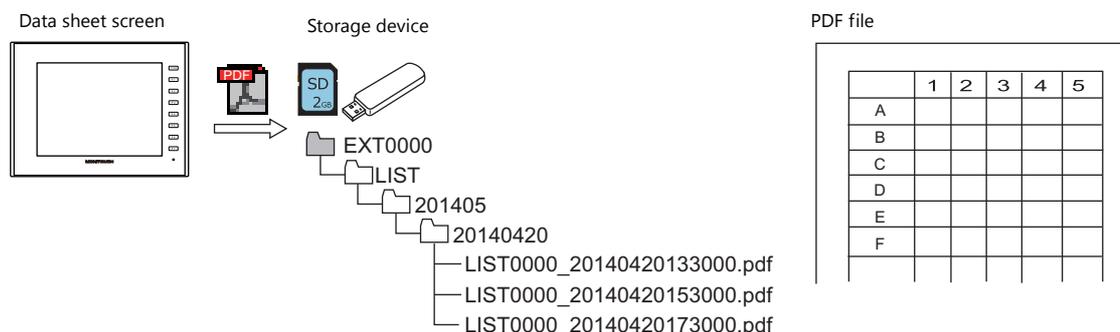
8.3.16 Saving Network Camera Images

The currently displayed image can be saved to a storage device as a JPEG file when the bit of a command device memory changes to ON or by double-tapping the display area. (Snapshot function)



8.3.17 PDF Output of Data Sheets

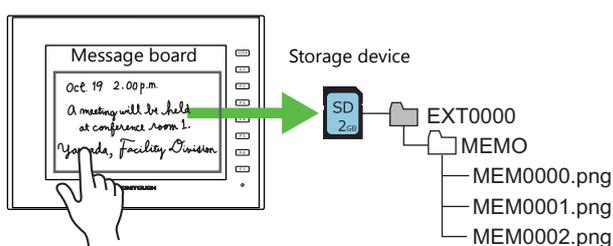
The current data of numerical data displays or character displays that are registered to a data sheet screen can be output as a PDF file to a storage device.



☞ Refer to “16.3 Printing Data Sheets” in the V9 Series Reference Manual 1.

8.3.18 Saving Memo Pad Data

Data from the memo pad function can be saved to a storage device as PNG files.



☞ Refer to “13.1 Memo Pad” in the V9 Series Reference Manual 1.

Memo Pad Data Storage Target and Filename

Filename	File Storage Target
MEMxxxx.png (xxxx: 0000 to 0007)	(Access folder)\MEMO

Operation on the V9 Series

Insert the storage device into the V9 series unit. When using the memo pad in RUN mode, the memo pad data is automatically stored on the storage device.

- * When the [Store Area for Memo Pad] checkbox is selected on the [SRAM/Clock Setting] screen on the [System Setting] menu, memo pad data is stored in SRAM even when a storage device is inserted into the V9 series unit.

Timing of Saving

The timing of writing memo pad data to a storage device is as follows.

- When switching the memo pad display using a switch with [+ Block], [- Block], or [Block Call] set for [Function]
- When the screen is changed

8.3.19 SRAM Data Backup

A backup copy of SRAM data can be saved to a storage device to guard against a case in which data may be lost when replacing the SRAM battery.

☞ Refer to the V9 series Troubleshooting/Maintenance Manual.

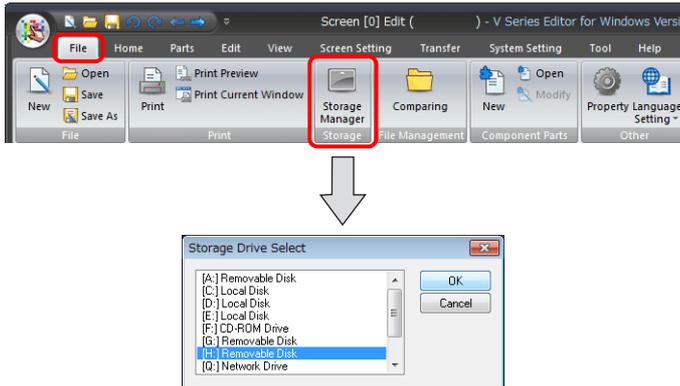
8.4 Storage Manager

The storage manager is an application that facilitates writing of data used by the V9 series unit to a storage device, and importing of data from a storage device for conversion into other file formats.

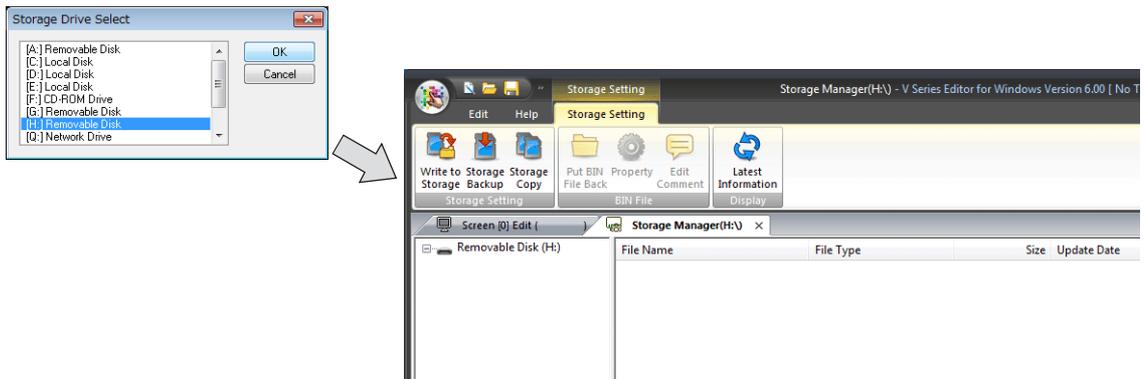
8.4.1 Starting and Ending

Starting

1. Start V-SFT.
2. Click [File] → [Storage Manager]. The window shown below is displayed.

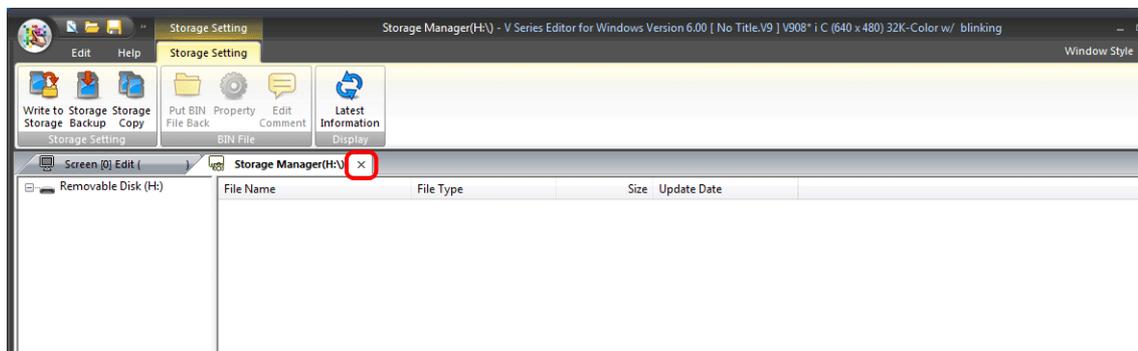


3. Specify the drive where the storage device is inserted and click [OK]. The [Storage Manager] window is displayed.



Ending

1. Click the [X] button on the corner of the [Storage Manager] tab.



2. The screen editing window reappears.

8.4.2 Writing

The procedure for writing data to a storage device is explained below.

Always use the storage manager to write the data in the following table to a storage device. Other files can be copied using Windows Explorer.

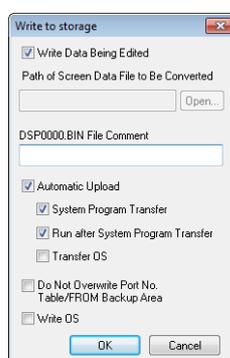
Data	Extension	Remarks
Screen program	.V9	
SRAM backup data	.RAM	
Text file	.BIN	

Writing Procedure

1. Click [Storage Setting] → [Write to Storage].



2. The [Write to storage] window is displayed.



Item	Description
Write Data Being Edited	Write the screen program that is open (being edited) in V-SFT.
Path of Screen Data File to Be Converted	Select the data for writing to the storage device from the [Open] button. File extensions: [*.*V9], [*.*RAM], [*.*TXT]
DSP0000.BIN File Comment	Add a comment to the screen program file (DSP0000.BIN). This comment can be checked via the file's [Property] window.
Automatic Upload	Create an automatic upload file.
System Program Transfer	Select this checkbox when uploading system program files together with the screen program.
Run after System Program Transfer	Automatically switch MONITOUCH to RUN mode after automatic upload is complete.
Do Not Overwrite Port No. Table/FROM Backup Area *1 *2	Select this checkbox to prevent existing values in the station number table or existing values in the FROM area from being changed when transferring a screen program from a storage device.

*1 Station number table

The station number of a counterpart device can be changed in RUN mode when connecting to the following models.

- PLC: Mitsubishi QnH (Q) series (Ethernet) (1 : n connection only)
- PLC: Mitsubishi QnA series (Ethernet) (1 : n connection only)
- PLC: OMRON SYSMAC CS1/CJ1 (Ethernet Auto) (1 : n connection only)
- PLC: OMRON SYSMAC CS1/CJ1 DNA (Ethernet) (1 : n connection only)
- Temperature controller: Fuji Electric F-MPC04P (loader)
- Temperature controller: Fuji Electric F-MPC04S (UM03)

*2 FROM backup area

The FROM backup area is where a backup copy of the data in the PLC or internal device memory can be stored. To retain the data, use the macro commands "FROM_RD" and "FROM_WR". For details on macros, refer to the V9 Series Macro Reference Manual.

3. When the settings are complete, click [OK]. A BIN file is written to each of the folders under the access folder.

8.4.3 BIN Files

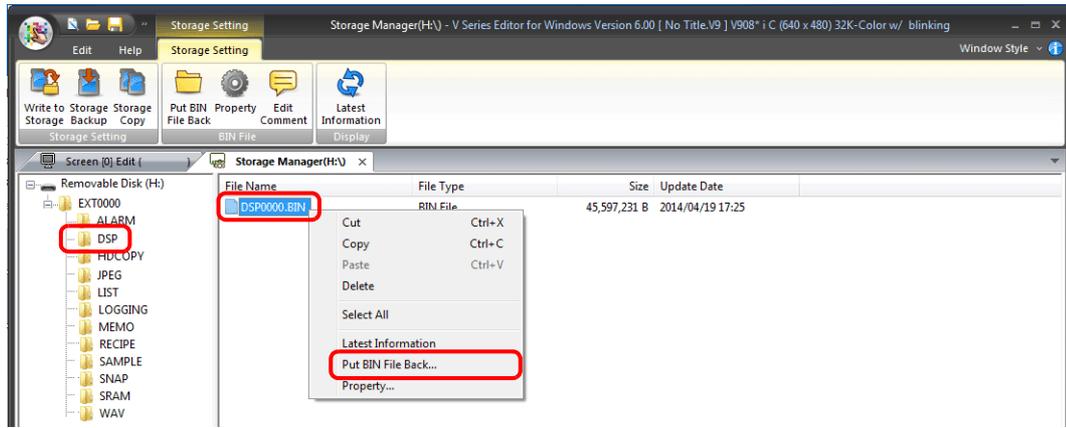
Files with the extension ".BIN" are stored under access folders. The storage manager can be used to convert BIN files and check file information.

File	Storage target folder	Extension After Conversion	File Type
DSP0000.BIN	DSP	.V9	Screen program
BMPxxxx.BIN	BITMAP	.BMP	Pattern file
MSGxyyy.BIN	MSG	.TXT	Message

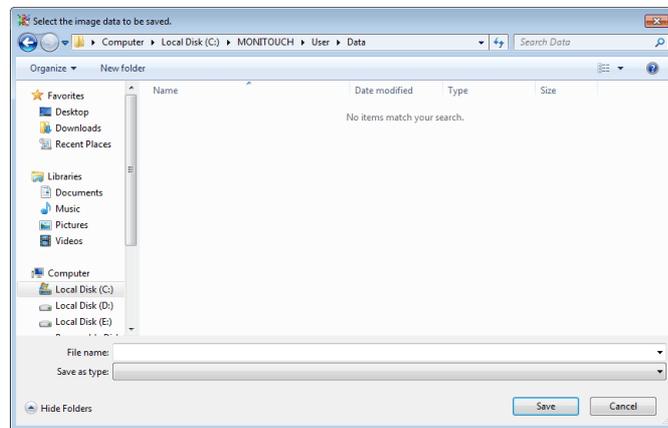
BIN File Conversion

All BIN files can be restored to their original state.

1. Select a file from an access folder.
2. Right-click on the file and select [Put BIN File Back].



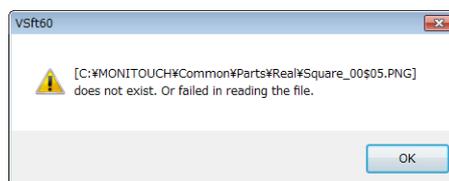
3. The window shown below is displayed. Specify the folder to save in and the filename and click [Save].



4. A converted file is created.

Notes

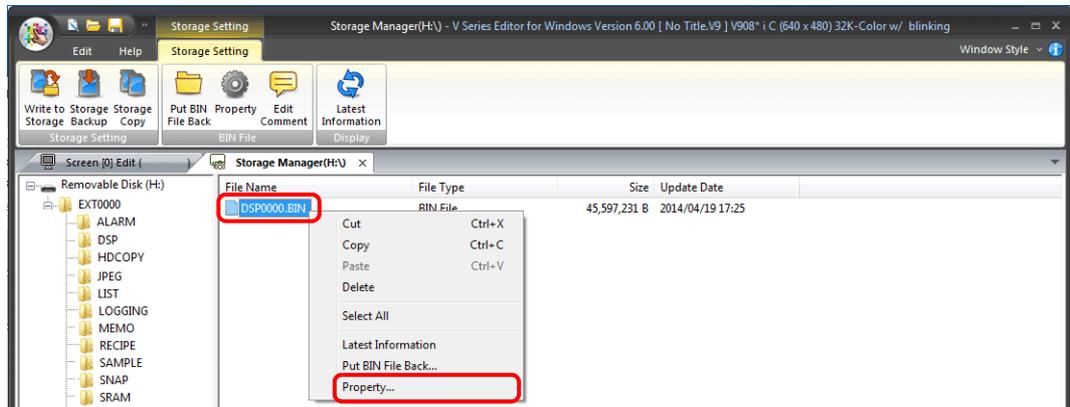
- Note that BIN files in the "BITMAP", "MSG", and "SCRN" folders are required to convert "DSP0000.BIN" into a V9 file. If these files are missing, the V9 file will be created without pattern data and 3D parts.



BIN File Properties

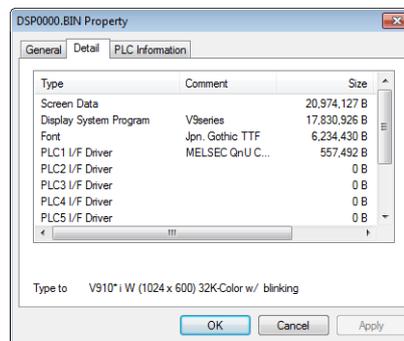
Information on each BIN file can be checked before conversion.

1. Select a file from an access folder.
2. Right-click on the file and select [Property]. Information on the file is displayed.



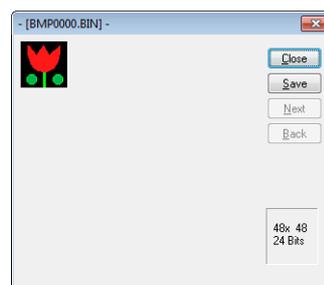
- DSP0000.BIN

The file type or system program version of the file can be checked on the [Detail] tab window.



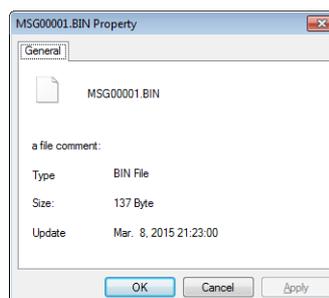
- BMPxxxx.BIN

A bitmap image is displayed.



- MSGxyyy.BIN

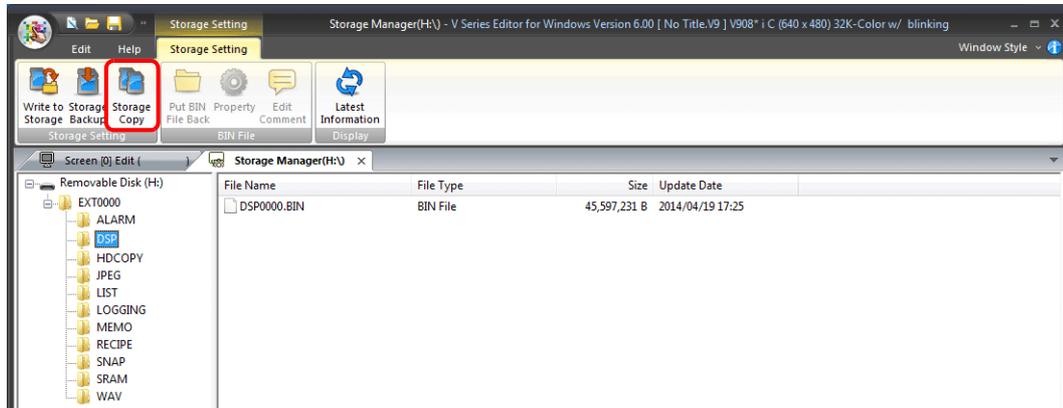
Information on the file is displayed.



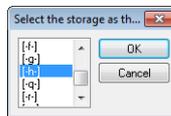
8.4.4 Storage Copy

Copy the data on the storage device.

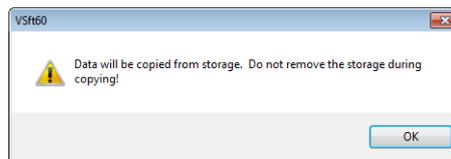
1. Click [Storage Setting] → [Storage Copy].



2. Specify the storage device drive and click [OK].



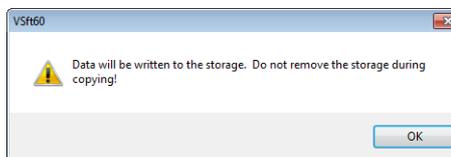
3. The following dialog box is displayed. Click [OK].



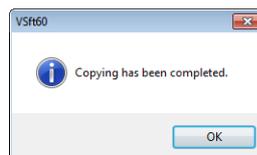
4. The following dialog box is displayed.
Remove the storage device from the PC and insert another device for saving the copied data. Click [OK].



5. The following dialog box is displayed. Click [OK].



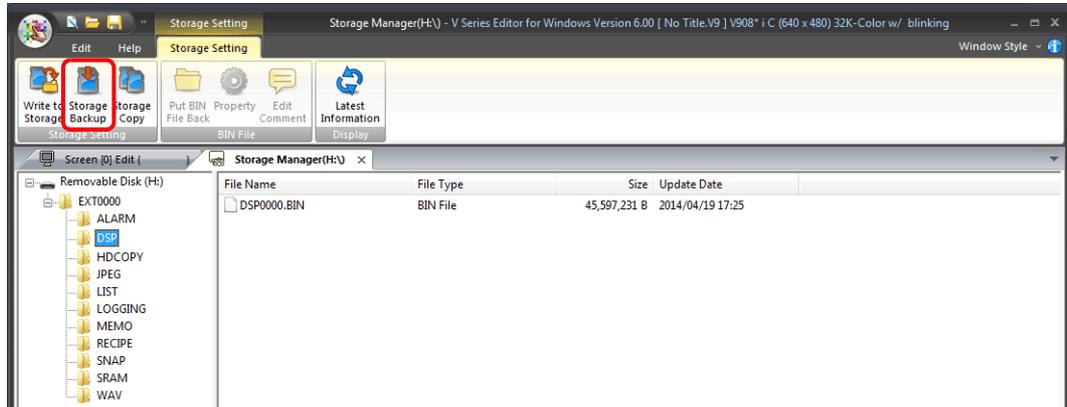
6. When copying is complete, the following dialog box is displayed.



8.4.5 Storage Device Backup

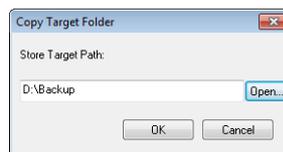
A backup of data on a storage device can be created.
Any folder can be selected for saving the data.

1. Click [Storage Setting] → [Storage Backup].



2. When the [Copy Target Folder] window is displayed, click [Open] and specify the copy target folder.

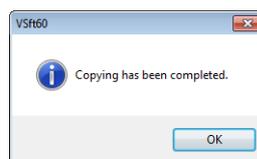
Example: When saving in the "Backup" folder in the D drive:



3. Click [OK]. The following dialog box is displayed.



4. Click [OK]. The data on the storage device is copied to the copy target. When copying is complete, the following dialog is displayed.



5. Use Windows Explorer to check that the data was copied correctly.

* When copying data from a storage device to the hard disk drive, it can also be copied and pasted using Windows Explorer.

8.5 System Device Memory (\$s)

Information about the status and the free space of the storage device inserted into the V9 series unit is stored in system device memory (\$s).

Addresses	Description	SD	USB-A	Device Type																																																
\$s497	Storage device error state	○ *1	○ *1																																																	
	<table border="1"> <thead> <tr> <th>Value</th> <th>JPEG</th> </tr> </thead> <tbody> <tr> <td>4</td> <td>Card not mounted</td> </tr> <tr> <td>5</td> <td>Format error</td> </tr> <tr> <td>6</td> <td>Card size too small</td> </tr> <tr> <td>7</td> <td>Different card type</td> </tr> <tr> <td>12</td> <td>Card write error</td> </tr> <tr> <td>15</td> <td>Disk error (open failure)</td> </tr> <tr> <td>16</td> <td>Card read error</td> </tr> </tbody> </table>				Value	JPEG	4	Card not mounted	5	Format error	6	Card size too small	7	Different card type	12	Card write error	15	Disk error (open failure)	16	Card read error																																
	Value				JPEG																																															
	4				Card not mounted																																															
	5				Format error																																															
	6				Card size too small																																															
	7				Different card type																																															
	12				Card write error																																															
15	Disk error (open failure)																																																			
16	Card read error																																																			
\$s498	Free space on storage device (kB)	○ *1	○ *1																																																	
\$s499																																																				
\$s500	[Storage Removal] switch status	○ *1	○ *1																																																	
	<table border="1"> <thead> <tr> <th colspan="15">MSB</th> <th colspan="1">LSB</th> </tr> <tr> <th>15</th><th>14</th><th>13</th><th>12</th><th>11</th><th>10</th><th>09</th><th>08</th><th>07</th><th>06</th><th>05</th><th>04</th><th>03</th><th>02</th><th>01</th><th>00</th> </tr> </thead> <tbody> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td> </tr> </tbody> </table> <p style="text-align: center;">System reserved ("0" setting)</p> <p style="text-align: right;">0: Switch OFF (storage removal prohibited) 1: Switch ON (storage removal permitted)</p>				MSB															LSB	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MSB															LSB																																				
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																																					
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																																					
\$s1030	Storage device error state \$s497 reference	○	-																																																	
\$s1031	Free space on storage device (kB)	○	-																																																	
\$s1032																																																				
\$s1033	[Storage Removal] switch status \$s500 reference	○	-	← V9																																																
\$s1035	Storage device error state \$s497 reference	-	○																																																	
\$s1036	Free space on storage device (kB)	-	○																																																	
\$s1037																																																				
\$s1038	[Storage Removal] switch status \$s500 reference	-	○																																																	
\$s1050	Background processing flag	○	○																																																	
	<table border="1"> <thead> <tr> <th colspan="15">MSB</th> <th colspan="1">LSB</th> </tr> <tr> <th>15</th><th>14</th><th>13</th><th>12</th><th>11</th><th>10</th><th>09</th><th>08</th><th>07</th><th>06</th><th>05</th><th>04</th><th>03</th><th>02</th><th>01</th><th>00</th> </tr> </thead> <tbody> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td> </tr> </tbody> </table> <p style="text-align: center;">System reserved ("0" setting)</p> <p style="text-align: right;">Alarm/logging data backup 0: Not processed, 1: Being processed</p> <p style="text-align: right;">Hard copy macro 0: Not processed, 1: Being processed</p>				MSB															LSB	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MSB															LSB																																				
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																																					
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																																					
\$s1051	Background processing completion flag	○	○																																																	
	When processing has been completed (when \$s1050 turns OFF), this turns ON. When the operation has been verified, the user must clear it to zero.																																																			
	<table border="1"> <thead> <tr> <th colspan="15">MSB</th> <th colspan="1">LSB</th> </tr> <tr> <th>15</th><th>14</th><th>13</th><th>12</th><th>11</th><th>10</th><th>09</th><th>08</th><th>07</th><th>06</th><th>05</th><th>04</th><th>03</th><th>02</th><th>01</th><th>00</th> </tr> </thead> <tbody> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td> </tr> </tbody> </table> <p style="text-align: center;">System reserved ("0" setting)</p> <p style="text-align: right;">Alarm/logging data backup 0: Not completed, 1: Completed</p> <p style="text-align: right;">Hard copy macro 0: Not completed, 1: Completed</p>				MSB															LSB	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MSB															LSB																																					
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																																					
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																																					

Addresses	Description	SD	USB-A	Device Type																																
\$s1052	<p>Background processing error flag If an error occurs at the time when processing has been completed (when \$s1050 turns OFF), this turns ON. When the operation has been verified, the user must clear it to zero.</p> <p>MSB LSB</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>09</td><td>08</td><td>07</td><td>06</td><td>05</td><td>04</td><td>03</td><td>02</td><td>01</td><td>00</td> </tr> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td> </tr> </table> <p style="text-align: center;">System reserved ("0" setting)</p> <p style="text-align: center;">Alarm/logging data backup 0: Normal, 1: Error</p> <p style="text-align: center;">Hard copy macro 0: Normal, 1: Error</p>	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	○	○	← V9
15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	00																					
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																					

*1 Information on the specified drive is stored at [System Setting] → [Other] → [Storage Setting] → [Storage Connection Target].

MEMO

MONITOUCH

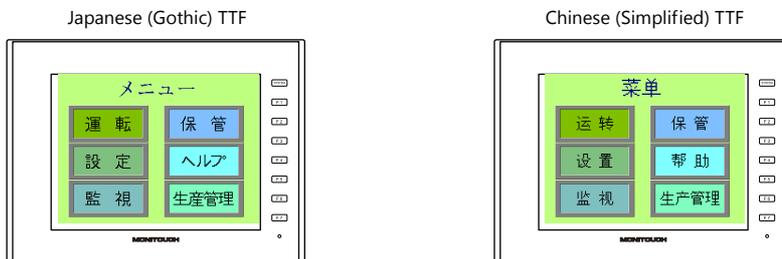


9 Language Changeover

9.1 Overview

9.1.1 Fonts

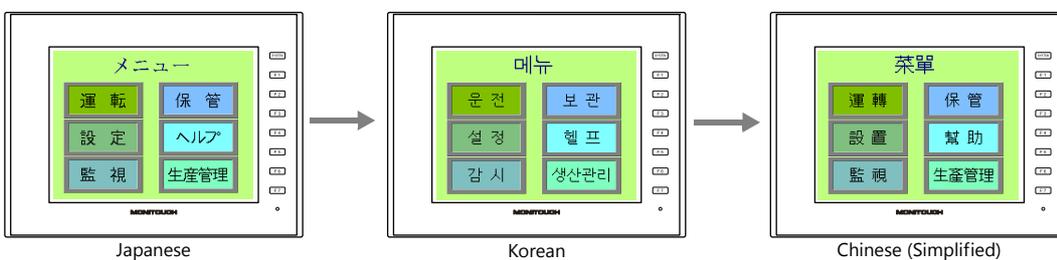
- Select a base language (font) first and then edit the screen using text that can be displayed in the selected font.



☞ For details on font types and supported languages, refer to “9.1.2 Font Types” page 9-2.

- A maximum of 16 languages can be used on the same screen just by switching the text for display.

Example: Registration of screen program “ABC.V9” in three languages



☞ For details, refer to “9.1.3 Language Selection” page 9-5.

- Use “Windows fonts” to display two or more languages on a single screen or display Windows-type characters on the screen.



☞ For details on Windows fonts, refer to the V9 Series Operation Manual.

9.1.2 Font Types

Fonts are generally divided into two types: TrueType fonts and bitmap fonts.
 Because the mixed use of fonts is not permitted on the V9 series unit, select one font type in the [System Setting] → [Multi-language Setting] → [Font Setting] window.

Type	Size Specification Method	Features	Image
TrueType font	Point specification	Supports smoothing. Note that TrueType fonts require more memory than bitmap fonts.	8ポイント 運転 MONITOUCH 10ポイント 運転 MONITOUCH 12ポイント 運転 MONITOUCH 16ポイント 運転 MONITOUCH 18ポイント 運転 MONITOUCH 24ポイント 運転 MONITOUCH
Bitmap font	XY magnification factor specification	Font data designed in sizes of 16 × 16 dots and 32 × 32 dots (two-byte characters). This font type occupies less memory but is not suitable if a smoother-line typeface is required. * V8 compatible	1×1 運転 MONITOUCH 2×2 運転 MONITOUCH 3×3 運転 MONITOUCH

 **Windows Fonts**
 No font data is stored on MONITOUCH. Fonts used on Windows, such as “Times New Roman” or “Arial”, are used as image data. Settings can be configured for each item.
 For details, refer to the V9 Series Operation Manual.

Supported Language List

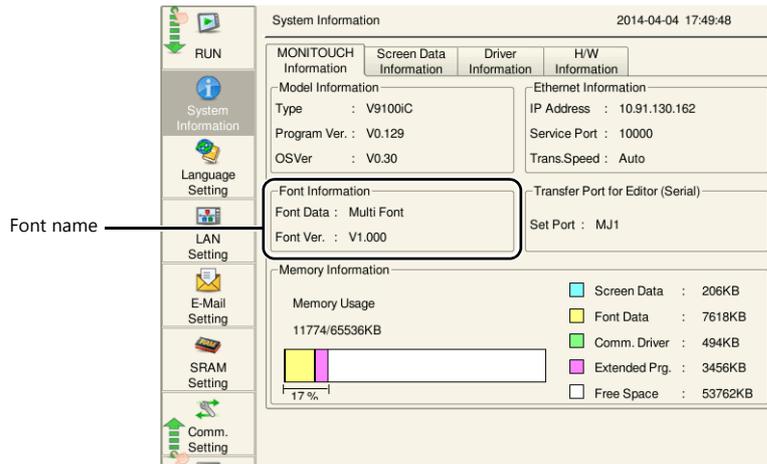
The following table lists the fonts and corresponding languages supported by the V9 series.

Font Setting ^{*1}	Supported Language	Supported Character Code	Remarks	
TrueType font	Japanese (Gothic) TTF	Japanese, English	JIS level-1 to level-4 + ANK code	8794 not displayable
	Japanese Times TTF			
	English/Western Europe Gothic TTF	English, Icelandic, Irish, Italian, Dutch, Swedish, Spanish, Danish, German, Norwegian, Portuguese, Finnish, Faroese, French	ISO-8859-1: Latin1 (Extended ASCII code)	
	English/Western Europe Times TTF			
	Chinese (Traditional) TTF	Chinese (traditional), English	BIG5 code (A141 to F9FE) + ASCII code	A344 to A373 not displayable
	Chinese (Simplified) TTF	Chinese (simplified), English	GB2312 code (A1A1 to F7FE) + ASCII code	A021 - A07E A6A1 - A6B8 A6C1 - A6D8 A7A1 - A7C0 A7D1 - A7F1 A8BB, A8BD, A8BE, A8C0 not displayable
	Korean TTF	Hangul, English	KS code (A1A1 to FDFE) + ASCII code	A2E6 and A2E7 not displayable
	Central Europe TTF	Croatian, Czech, Hungarian, Polish, Hrvatska (Croatian), Romanian, Slovakian, Slovene	CP1250 code	
	Cyrillic TTF	Russian, Ukrainian, Kazakh, Bulgarian, Uzbek, Azerbaijani	CP1251 code	
	Greek TTF	Greek	CP1253 code	
	Turkish TTF	Turkish	CP1254 code	
Baltic TTF	Estonian, Latvian, Lithuanian	CP1257 code		
Bitmap font	Japanese	Japanese, English	JIS level-1 and level-2 + ANK code	
	Japanese 32		JIS level-1 + ANK code	
	English/Western Europe	English, Icelandic, Irish, Italian, Dutch, Swedish, Spanish, Danish, German, Norwegian, Portuguese, Finnish, Faroese, French	ISO-8859-1: Latin1 (Extended ASCII code)	
	Chinese (Traditional)			
	Chinese (Simplified)	Chinese (simplified), English	GB2312 code (A1A1 to FEFE) + ASCII code	
	Korean	Hangul, English	KS code (A1A2 to C8FE) + ASCII code	
	Central Europe	Croatian, Czech, Hungarian, Polish, Hrvatska (Croatian), Romanian, Slovakian, Slovene	CP1250 code	
	Cyrillic	Russian, Ukrainian, Kazakh, Bulgarian, Uzbek, Azerbaijani	CP1251 code	
	Greek	Greek	CP1253 code	
	Turkish	Turkish	CP1254 code	
	Baltic	Estonian, Latvian, Lithuanian	CP1257 code	

*1 TrueType fonts and bitmap fonts cannot be used together.

Checking Fonts on MONITOUCH

The font name is displayed at the following location in Local mode.

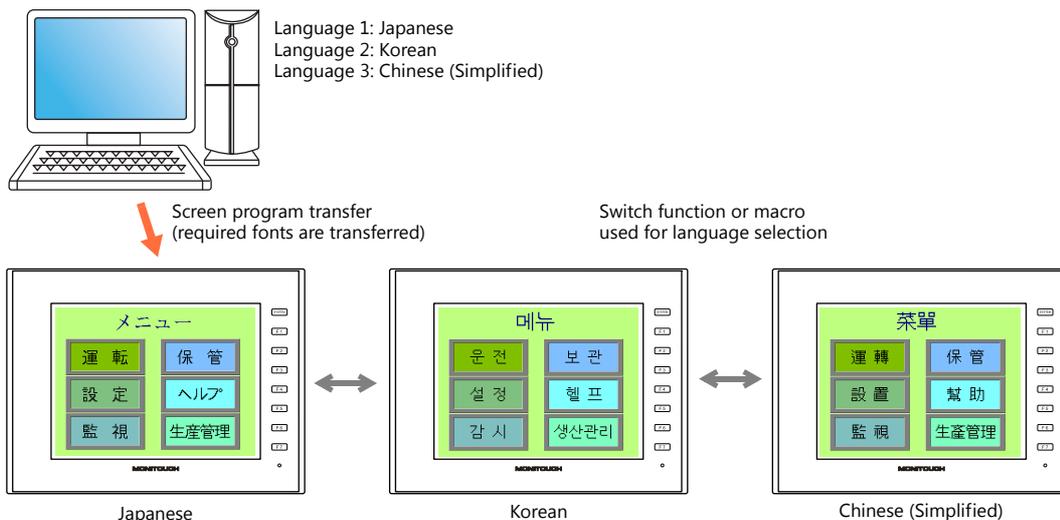


The font names that are displayed in the [Font Setting] window and in Local mode are listed below.

	Font Setting	Local Mode
TrueType font	Japanese (Gothic) TTF	Jpn. Gothic TTF
	Japanese Times TTF	Jpn. Times TTF
	English/Western Europe Gothic TTF	Eng. Gothic TTF
	English/Western Europe Times TTF	Eng. Times TTF
	Chinese (Traditional) TTF	Chinese(Trd.)TTF
	Chinese (Simplified) TTF	Chinese(Smp.)TTF
	Korean TTF	Korean TTF
	Central Europe TTF	Central Euro.TTF
	Cyrillic TTF	Cyrillic TTF
	Greek TTF	Greek TTF
	Turkish TTF	Turkish TTF
	Baltic TTF	Baltic TTF
	Bitmap font	Japanese
Japanese 32		JAPANESE 32
English/Western Europe		ENGLISH
Chinese (Traditional)		CHINESE(TRAD.)
Chinese (Simplified)		CHINESE(SIMP.)
Korean		KOREAN
Central Europe		Central Euro.
Cyrillic		Cyrillic
Greek		Greek
Turkish		Turkish
Baltic	Baltic	
Multi-language screen (with multiple fonts selected)		Multi FONT

9.1.3 Language Selection

- All required fonts can be stored on MONITOUCH in advance and then displayed by changing between character sets.



☞ For details on settings, refer to [“9.2 Setting Procedure” page 9-6](#).

- The text for display can be changed even when using a single font, such as German ↔ Italian or Japanese ↔ English. Using only one font reduces the space required by the screen program.



☞ For details on languages that are supported by each font, refer to [“Supported Language List” page 9-3](#).

☞ For details on settings, refer to [“9.2 Setting Procedure” page 9-6](#).

- When using a Windows font, it is possible to change only the text. The text for display can be changed using a single font.

☞ For details on Windows fonts, refer to the V9 Series Operation Manual.

- To change the language in the RUN mode, use a switch with [Function] set to “Language changeover” or use the “CHG_LANG” macro command.

☞ For details, refer to [“9.2.3 Language Selection” page 9-13](#).

- The following methods are available for language editing.

☞ For details, refer to [“9.2.2 Language Editing” page 9-7](#).

☞ For details, refer to [“9.4 Convenient Editing Procedures” page 9-18](#).

9.2 Setting Procedure

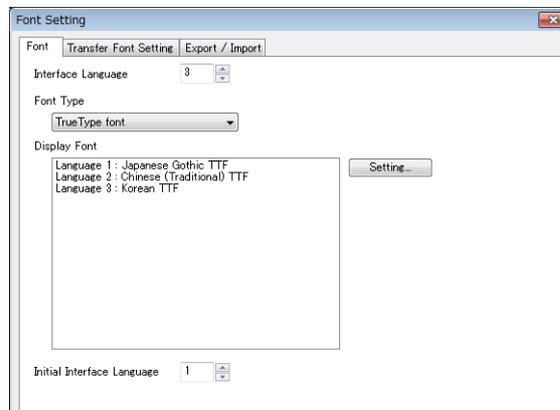
This section describes the procedure for configuring settings that allow changing languages that use different fonts when in RUN mode.

(The procedure is explained assuming that the setting for Language 1 has been completed.)

1. Font settings (refer to [page 9-6](#))
2. Editing of each language (refer to [page 9-7](#))
3. Language selection using the switch function or "CHG_LANG" macro command (refer to [page 9-13](#))

9.2.1 Font Setting

1. Click [System Setting] → [Multi-language Setting] to display the [Font Setting] window.
2. Set a value for [Interface Language]. (Example: set "3" to allow changing between three languages.)
3. Set [Font Type] to "TrueType font" and set the languages to be displayed.
 - Example 1: Changing between Japanese, Chinese (Simplified) and Korean
 - Language 1: Japanese (Gothic) TTF
 - Language 2: Chinese (Simplified) TTF
 - Language 3: Korean TTF
 - Example 2:
 - Changing between German and Italian
 - Language 1: English/Western Europe Gothic TTF
 - Language 2: English/Western Europe Gothic TTF
 - Changing between Japanese and English
 - Language 1: Japanese (Gothic) TTF
 - Language 2: Japanese (Gothic) TTF
4. Select a language number for [Initial Interface Language] so that the corresponding language is displayed when a screen program is transferred.



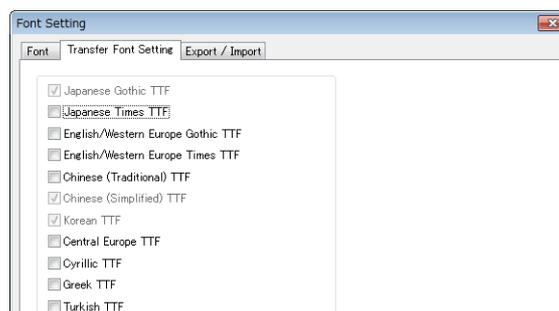
This completes the necessary settings.



Transfer font setting

Select the checkboxes of the fonts required on the V9 series unit. More fonts selected for transfer results in less capacity available for the screen program.

Do not select fonts that are not necessary.



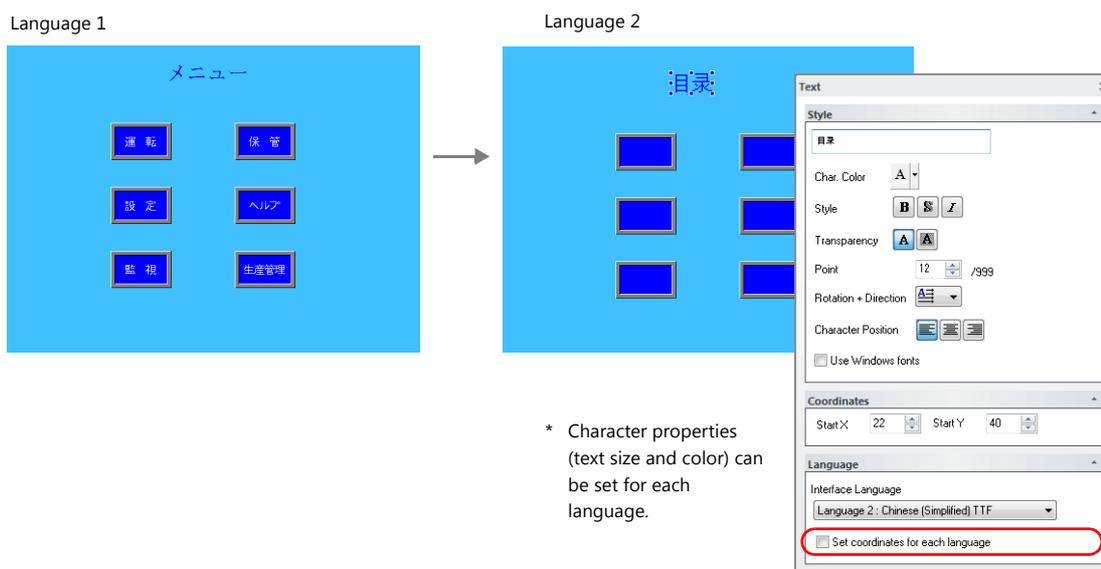
9.2.2 Language Editing

This section explains the multi-language editing procedure assuming that the version of Microsoft Windows on the PC used is capable of editing the required foreign languages. There are three methods for editing languages.

* For details on the settings and notes for editing foreign languages on a Japanese version of Microsoft Windows, refer to the V9 Series Operation Manual.

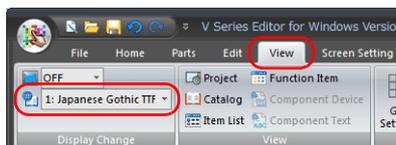
A. Directly Edit Items

By specifying the interface language number on the [Language] changing menu, text for Language 2 and later can be edited on the screen in the same way as Language 1.

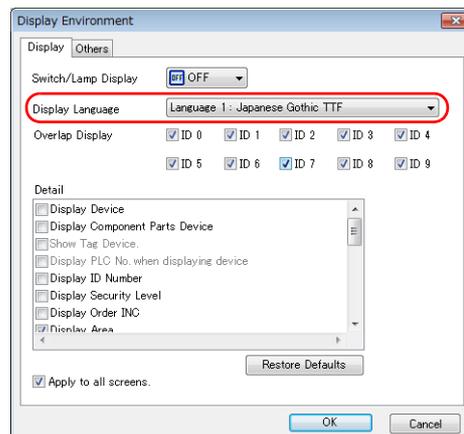


• The interface language number can also be changed using the [Display Language] drop-down menu.

• [View] → [Display Change]



• [View] → [Display Environment]



Checking the layout

After editing, always check the layout of each language for problems using the [Language] changing menu.

Character properties can be set for each language.

The point size and color settings can be changed for specific languages.

B. Editing in the [Multi-language Edit] Window

Display the text in the screen program edited using Language 1 in the [Multi-language Edit] window and directly enter the desired text in another language.

Text can be copied and pasted between the [Multi-language Edit] window and Excel (pasted as "Unicode text" in Excel).

Editing location: [Home] → [Registration Item ▼] → [Multi-language]

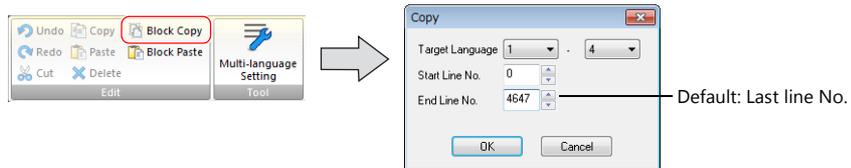


Language 1 cannot be edited in the [Multi-language Edit] window. To edit Language 1, edit it directly in the item settings.

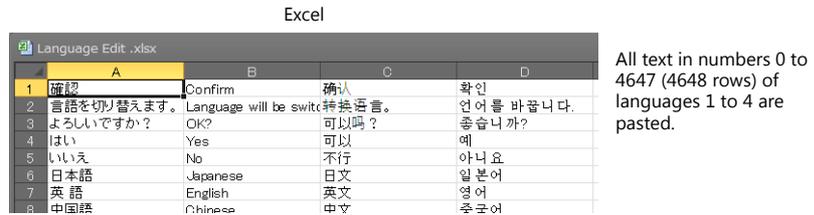
- * The [Multi-language Edit] window can be used to register up to 1000 lines (No. 0 to 999) per sheet. When batch copying over 1000 lines (from the second sheet onwards) for editing in Excel, use the following procedure.

Example: Example: Batch copy of languages 1 to 4, numbers 0 to 4647 (4648 rows) in the [Multi-language Edit] window

- 1) Click [Edit] → [Block Copy]. The [Copy] window is displayed. Specify target languages and start/end line numbers to copy, and click the [OK] button.



- 2) Select a cell in Excel and paste.



* If text cannot be pasted correctly, click [Paste Special] and select [Paste As: Unicode Text] to paste. Default: Unicode text

- 3) After editing in Excel, select the multi-language columns for Language 2 through 4 by dragging and copy them.



Language 1 cannot be pasted (edited) to the [Multi-language Edit] window. To edit Language 1, edit it directly in the item settings.

- 4) Click [Edit] → [Block Paste] in the [Multi-language Edit] window in V-SFT to display the [Paste] dialog. Select the languages for pasting and the starting row number, and click [OK].



This completes the editing. After editing, always check the layout of each language for problems using the [Language] changing menu. For details, refer to [page 9-7](#).

C. Export / Import

Export and import can be performed by compiling all languages in a text file per language.

Using this function allows text to be imported after undergoing translation and editing by viewing multiple languages side by side on an Excel spreadsheet.

Outputting a File for Each of the Languages for Switching

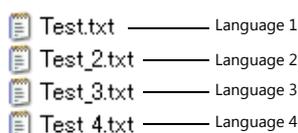
Export procedure

1. Select [System Setting] → [Multi-language Setting] to display the [Font Setting] window and click the [Import/Export] tab.
2. Configure the settings as shown below and click [Export].



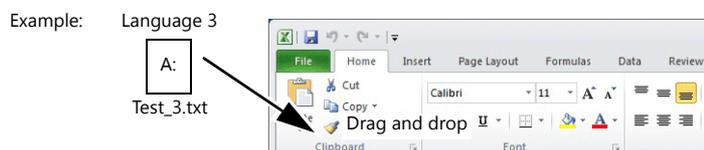
To export to CSV files instead of Unicode text files, select "*.csv" for [File format].

3. The [Save As] window is displayed.
Enter a filename and click [Save] to output text files.



The same number of files are created as there are languages.

4. Start Excel and drag and drop the exported text into the Excel window to open it.



Language 1 cannot be pasted (edited) to the [Multi-language Edit] window. To edit Language 1, edit it directly in the item settings.

5. Register the text in square brackets in column B.

	A	B	C	D
1	MLB0000.STR	[确认]		
2	MLB0000.STR	[转换语言。]		
3	MLB0000.STR	[可以吗?]		
4	MLB0000.SW000	[可以]		
5	MLB0000.SW000	[不行]		
6	SCRN0000.B00.SW000	[日文]		



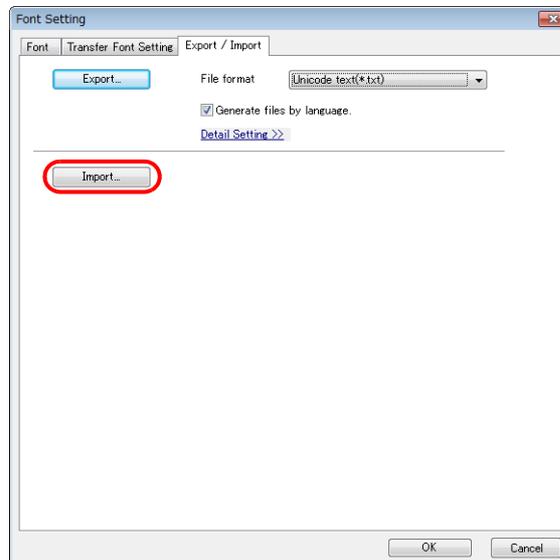
Do not edit column A. Also, do not delete any square brackets in column B. If these are edited or deleted, file import will end in failure.

6. After editing, click [File] → [Save As].
Select "Unicode Text (*.txt)" for [Save as type] and save the file using the same filename.

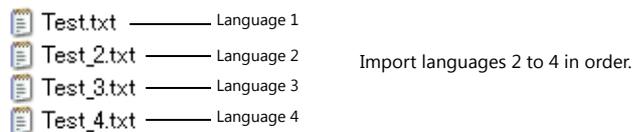
This completes the necessary settings.

Import procedure

1. Click [System Setting] → [Multi-language Setting] to display the [Font Setting] window.
2. Display the [Export/Import] tab and click the [Import] button.



3. The [Open] window is displayed.
Select "Unicode text (*.txt)" for [Save as type] and open each file one at a time.



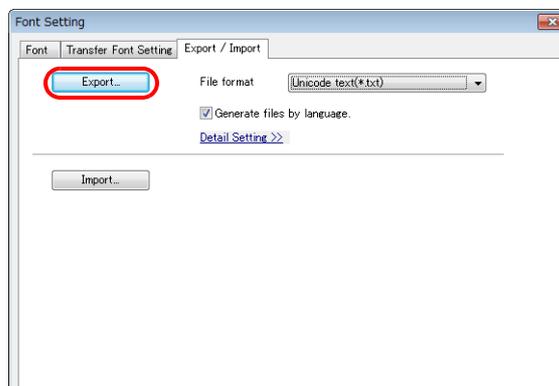
Be sure to save the files for languages 1 to 4 in the same place and using the original filenames. If any file is renamed or the Language 1 file is edited or deleted, file import will end in failure.
The Language 1 file cannot be imported.

This completes the file importing process.
After editing, always check the layout of each language for problems using the [Language] changing menu.
For details, refer to [page 9-7](#).

Outputting All Languages to a Single File

Export procedure

1. Select [System Setting] → [Multi-language Setting] to display the [Font Setting] window and click the [Import/Export] tab.
2. Configure the settings as shown below and click [Export].



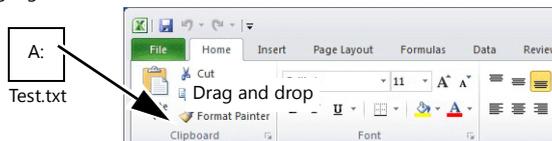
To export to CSV files instead of Unicode text files, select "*.csv" for [File format].

3. The [Save As] window is displayed.
Enter a filename and click [Save] to output text files.

Test.txt ——— Languages 1 to 4 One file is created.

4. Start Excel and drag and drop the exported text into the Excel window to open it.

Example: Languages 1 to 4



Language 1 cannot be pasted (edited) to the [Multi-language Edit] window. To edit Language 1, edit it directly in the item settings.

5. Register the text in square brackets in column C, D, and E (red frame).

	A	B	C	D	E
1	<< header start -->>		Language 2	Language 3	Language 4
2	Export Multi Languages Text List				
3	Ver:1.0	Info:0,1,1,1,1	/	/	/
4	Language:	1:Japanese	2:English	3:Chinese (Simplified)	4:Korean
5	<<-- header end >>				
6	MLJB0000:STR	[確認]	[Confirm]	[확인]	[확인]
7	MLJB0000:STR	[言語を切り替えます。]	[Language will be switched.]	[转换语言。]	[언어를 바꿉니다.]
8	MLJB0000:STR	[よろしいですか?]	[OK?]	[可以吗?]	[중송니까?]
9	MLJB0000:SW000	[はい]	[Yes]	[可以]	[예]
10	MLJB0000:SW000	[いいえ]	[No]	[不行]	[아니요]
11	MLJB0000:SW000	[日本語]	[日本語]	[日本語]	[이보시]



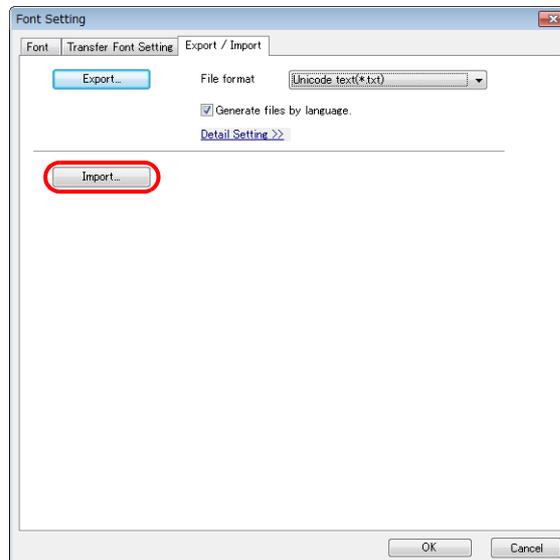
Do not edit the first to fifth rows (header) and columns A/B (language 1). Also, do not delete any square brackets from column C, D, or E. If these are edited or deleted, file import will end in failure.

6. After editing, click [File] → [Save As].
Select "Unicode Text (*.txt)" for [Save as type] and save the file using the same filename.

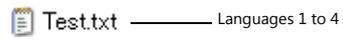
This completes the necessary settings.

Import procedure

1. Click [System Setting] → [Multi-language Setting] to display the [Font Setting] window.
2. Display the [Export/Import] tab and click the [Import] button.



3. The [Open] window is displayed.
Select "Unicode text (*.txt)" for [Save as type] and open the file.



This completes the file importing process.
After editing, always check the layout of each language for problems using the [Language] changing menu.
For details, refer to [page 9-7](#).

9.2.3 Language Selection

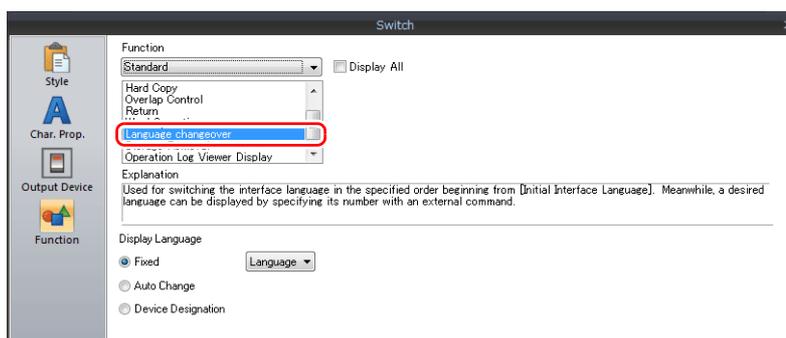
There are two ways to change the language.
Use either a switch function or macro command.

Switch Function

The interface language can be changed using a switch with the function [Language changeover].
Each time a [Language changeover] switch is pressed, the interface language switches in the specified order beginning from the [Initial Interface Language]. A desired language can also be displayed by specifying its number with an external command.

Location of Settings

Switch settings window → [Function] → [Function] → [Language changeover]



Item	Description
Fixed	Display the interface language of the specified language number. Language 1 to 16
Auto Change	Change the interface language in the specified order beginning from the [Initial Interface Language] set in the [Font Setting] window. Languages that are not selected in the window will not be displayed.
Device Designation	Display the interface language of the number stored at the specified device memory. 0: Language 1 1: Language 2 2: Language 3 : 15: Language 16



If a nonexistent language number is specified for display, an error beep sounds and no action takes place. The number of interface languages can be checked at [System Setting] → [Multi-language Setting] → [Font Setting] window.

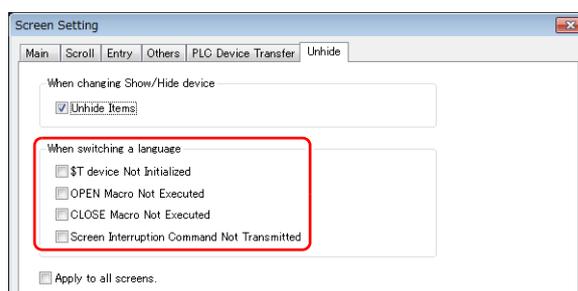
Redraw Timing

When the interface language is switched, the screen is redrawn. The following actions also take place at the same time.

- Open macro, close macro (screen, multi-overlap library)
- Cycle macro (screen)
- \$T device memory zero clear (screen)
- Screen interrupt command transfer (PLC type: universal serial) (screen)

Prevent execution of these operations when redraw occurs by selecting the checkboxes as required.

Location of settings: [Screen Setting] → [Screen Setting] → [Unhide]



SYS (CHG_LANG) Macro Command

The "SYS (CHG_LANG)" macro command can be used to change the interface language. This command is useful when changing the language using the ON macro of a switch or an external command.

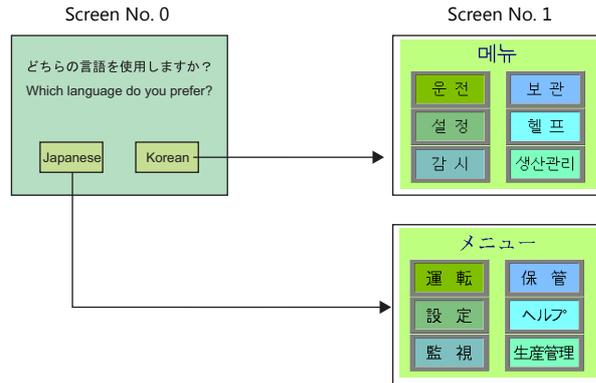


The language is switched over when the screen is changed after the macro command has been executed. For switching the language on the same screen, use the "RESET_SCRN" macro command. For details on macro commands, refer to the V9 Series Macro Reference Manual.

Setting Example

Example: Changing the language by switching the screen

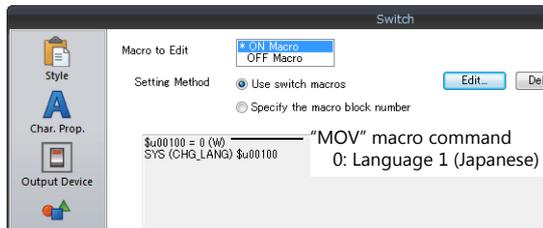
Language 1: Japanese
Language 2: Korean



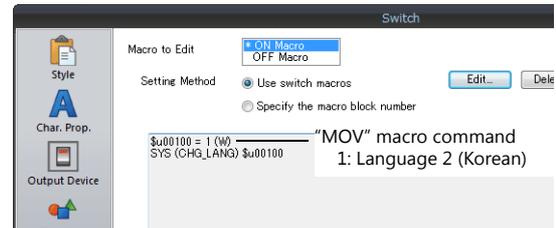
With either switch, the interface language can be switched over when screen No. 1 is displayed.

1. Configure the switch ON macro as shown below.

- "Japanese" switch ON macro



- "Korean" switch ON macro



2. Set the function of each switch to "Language changeover: 1".

This completes the necessary settings.

Detail

Device used

	Internal Device	PLC1 to PLC8 Devices	Memory card	Constant
F1	⊙			

○: Setting enabled (indirect designation disabled) ⊙: Setting enabled (indirect designation enabled)

Range

	Value	Remarks
F1	0: Language 1 1: Language 2 : 15: Language 16	Although the setting range for [Interface Language] in the [System Setting] → [Multi-language Setting] → [Font Setting] window and [Display Language] in the [Display Environment] window is "1" to "16", the range for "CHG_LANG" is "0" to "15".

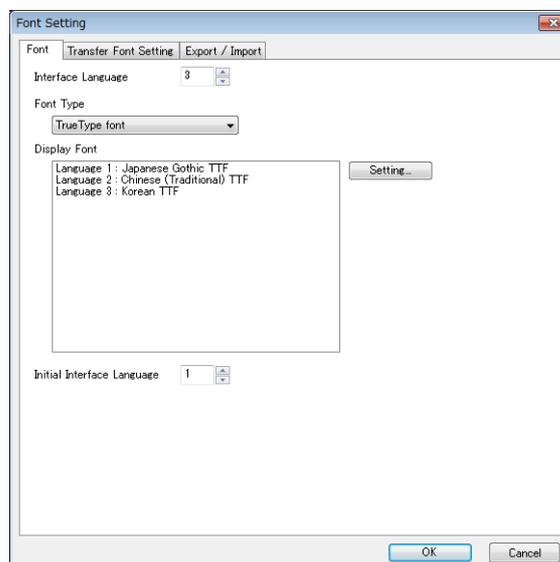
Editing procedure

For details on macro editing, refer to the V9 Series Macro Reference Manual.

9.3 Detailed Settings

9.3.1 Font Setting

Set the number of languages and fonts for display on the V9 series unit. Display the following window by clicking [System Setting] → [Multi-language setting].



Item	Description											
Interface Language	Set the number of interface languages. 1 to 16 Example: [5]: Languages 1 to 5											
Font Type	Select either [TrueType font] or [Bitmap font].											
Setting	Set the languages to use.											
Initial Interface Language	Select the language to be displayed immediately after screen program transfer. 1 to 16 Operation is as follows after transfer. <table border="1"> <thead> <tr> <th>Operation</th> <th>Display Language</th> </tr> </thead> <tbody> <tr> <td>Power ON</td> <td>The language displayed when the power was turned OFF is displayed.</td> </tr> <tr> <td>Switching from RUN mode to Local mode</td> <td>The language used in RUN mode is displayed.</td> </tr> <tr> <td>Switching from Local mode to RUN mode</td> <td>The language used in Local mode is displayed. *</td> </tr> <tr> <td>In Local mode during screen program transfer</td> <td rowspan="2">The language specified for [Initial Interface Language] in the screen program is displayed.</td> </tr> <tr> <td>In RUN mode during screen program transfer</td> </tr> </tbody> </table>	Operation	Display Language	Power ON	The language displayed when the power was turned OFF is displayed.	Switching from RUN mode to Local mode	The language used in RUN mode is displayed.	Switching from Local mode to RUN mode	The language used in Local mode is displayed. *	In Local mode during screen program transfer	The language specified for [Initial Interface Language] in the screen program is displayed.	In RUN mode during screen program transfer
Operation	Display Language											
Power ON	The language displayed when the power was turned OFF is displayed.											
Switching from RUN mode to Local mode	The language used in RUN mode is displayed.											
Switching from Local mode to RUN mode	The language used in Local mode is displayed. *											
In Local mode during screen program transfer	The language specified for [Initial Interface Language] in the screen program is displayed.											
In RUN mode during screen program transfer												

* Exceptions

- Example 1: When the same font is registered multiple times, the language number displayed before switching to Local mode is displayed.

[Interface Language]: 2, [Transfer Font Setting]: Japanese (Gothic) TTF, [Initial Interface Language]: 1

- Language 1: Japanese (Gothic) TTF
- Language 2: Japanese (Gothic) TTF

- Example 2: In the following case, the lowest language number in the font settings is displayed.

[Interface Language]: 3, [Transfer Font Setting]: Japanese (Gothic) TTF, English/Western Europe Gothic TTF, Central Europe TTF, [Initial Interface Language]: 1

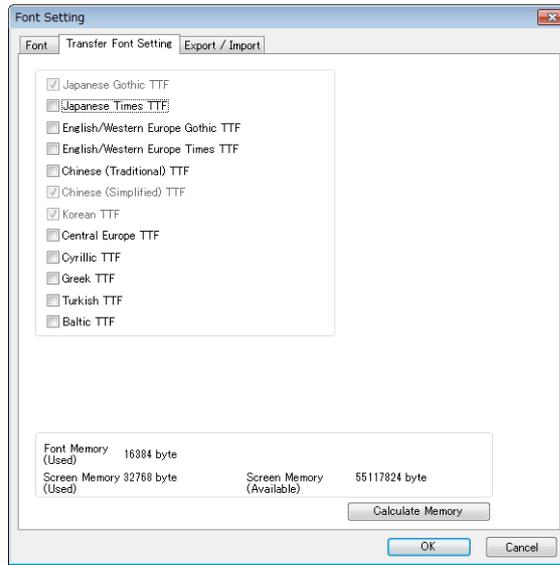
- Language 1: Japanese (Gothic) TTF
- Language 2: English/Western Europe Gothic TTF
- Language 3: Central Europe TTF

Operation example:

```

RUN (Japanese (Gothic) TTF)
↓
Local mode (switch from Japanese to English)
↓
RUN (Language 2 is displayed)
  
```

9.3.2 Transfer Font Setting

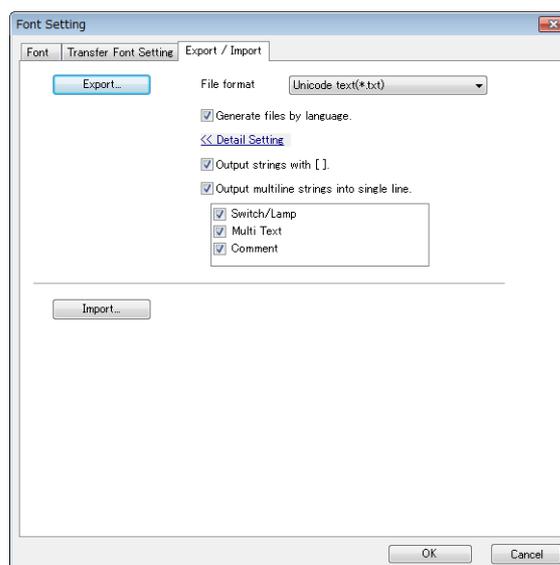


Item	Description
Transfer Font Setting ^{*1}	Select the checkboxes of the fonts required on the V9 series unit. * More fonts selected for transfer results in less capacity available for the screen program. If capacity is insufficient, do not select unnecessary fonts.
Font Memory (Used)	Displays the total memory size used for the currently selected fonts for transfer.
Screen Memory (Used)	Displays the size of the screen program currently being created.
Screen Memory (Available)	Displays the space available for the screen program.
Calculate Memory	Recalculate the volume of data from the current settings.

*1 Languages that can be displayed in Local mode are listed below. Which languages are available for display is determined by selecting the corresponding checkboxes on the [Transfer Font Setting] tab.

Transfer Font Setting	Local Mode
Japanese (Gothic) TTF	Japanese, English
Japanese Times TTF	
English/Western Europe Gothic TTF	English
English/Western Europe Times TTF	
Chinese (Traditional) TTF	Chinese (Traditional), English
Chinese (Simplified) TTF	Chinese (Simplified), English
Korean TTF	Korean, English
Central Europe TTF	English
Cyrillic TTF	
Greek TTF	
Turkish TTF	
Baltic TTF	

9.3.3 Import and Export



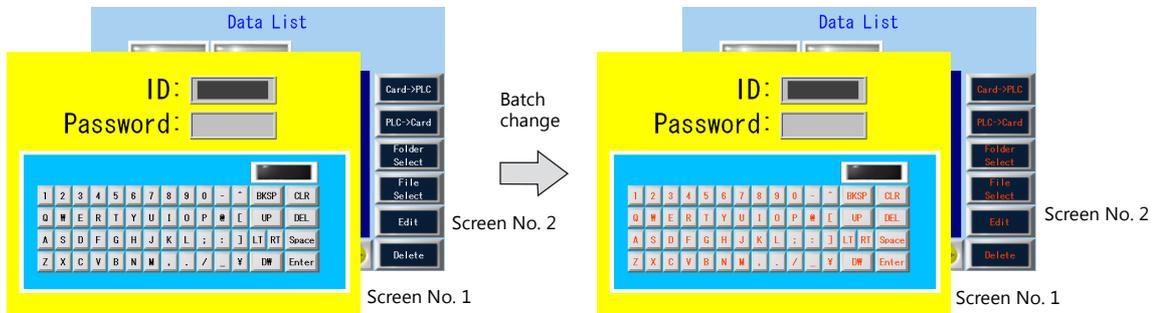
Item	Description									
Export	Use this button when editing text for a language other than Language 1 in another application. For details, refer to page 9-9 .									
File format	Select the type of the file to be exported.									
Generate files by language.	<p>Set the file creation method used in exporting.</p> <ul style="list-style-type: none"> Selected The same number of files are created as there are languages. Unselected One file is created. <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <p>Test.txt — Language 1</p>  <p>Test_2.txt — Language 2</p>  <p>Test_3.txt — Language 3</p>  <p>Test_4.txt — Language 4</p> </div> <div style="text-align: center;">  <p>Test.txt — Languages 1 to 4</p> </div> </div>									
Output strings with [.]	<p>Selected Add square brackets to text in output files.</p> <p>Unselected Delimit output with commas. When a file is opened in Excel, some text like the following will not be imported correctly.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Characters on V-SFT</th> <th>Output File (Standard cell format)</th> <th></th> </tr> </thead> <tbody> <tr> <td>0123</td> <td>123</td> <td>← Leading zeros dropped</td> </tr> <tr> <td>+BK</td> <td>#NAME?</td> <td>← Not recognized as a character string</td> </tr> </tbody> </table>	Characters on V-SFT	Output File (Standard cell format)		0123	123	← Leading zeros dropped	+BK	#NAME?	← Not recognized as a character string
Characters on V-SFT	Output File (Standard cell format)									
0123	123	← Leading zeros dropped								
+BK	#NAME?	← Not recognized as a character string								
Output multiline strings into single line.	<p>Set how multiple lines of text located on a switch or lamp are output.</p> <p>Selected Lines of text are output in one cell with the line feed code “\n”.</p> <p>Unselected Text is output line by line in separate cells.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Switch</th> <th>Checkbox</th> <th>Output Result</th> </tr> </thead> <tbody> <tr> <td rowspan="2" style="text-align: center;"></td> <td>Selected</td> <td>[Error \n Screen]</td> </tr> <tr> <td>Unselected</td> <td>[Error] [Screen]</td> </tr> </tbody> </table>	Switch	Checkbox	Output Result		Selected	[Error \n Screen]	Unselected	[Error] [Screen]	
Switch	Checkbox	Output Result								
	Selected	[Error \n Screen]								
	Unselected	[Error] [Screen]								
Import	Use this button to import an exported file. For details, refer to page 9-9 .									

9.4 Convenient Editing Procedures

9.4.1 Multi-language Batch Change

Overview

Item properties (text color etc.) for multiple languages from language 1 to 16 can easily be changed at once.

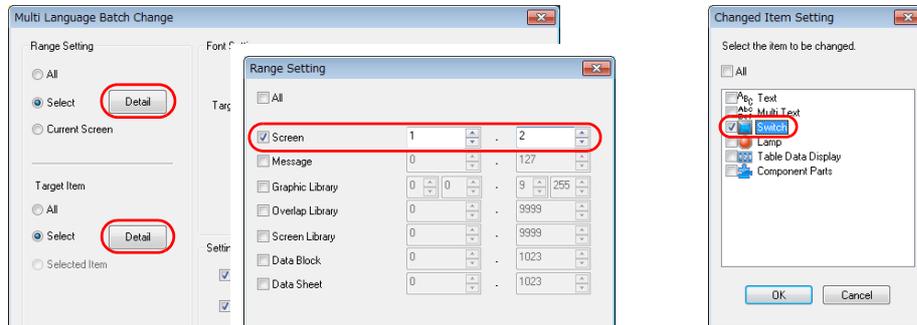


Setting Example

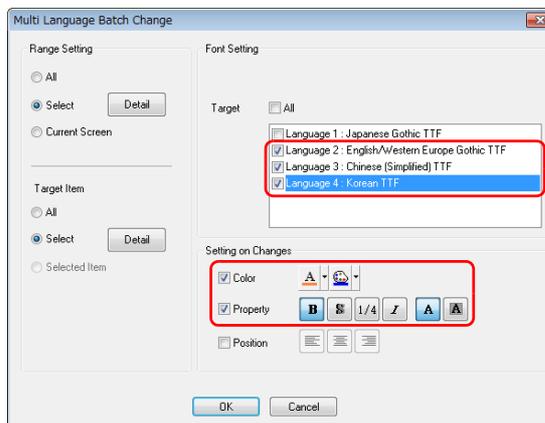
The procedure is explained with an example shown below.

Example: Changing the switch properties on screen numbers 1 and 2
 Text color: black to orange, text property: standard to boldface

1. Select [Tool] → [Multi Language] → [Multi Language Batch Change] to display the [Multi Language Batch Change] window.
2. Click the [Select] → [Detail] button under [Range Setting] and specify a screen range of 1 to 2. Click the [Select] → [Detail] button under [Target Item] and select the [Switch] checkbox.



3. Select the [Target] checkbox under [Font Setting].
4. In the [Setting on Changes] area, select the [Color] checkbox and select orange. Also select the [Property] checkbox and select boldface.



5. Review the settings made in the previous steps, and click [OK].

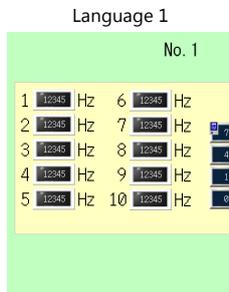
The settings are updated.

9.4.2 Multi-language Batch Copy

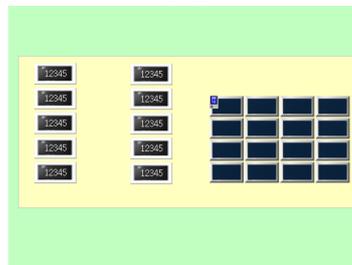
Overview

If exactly the same text, such as text on switches and item numbers, as language 1 is to be used, it can be easily copied at once.

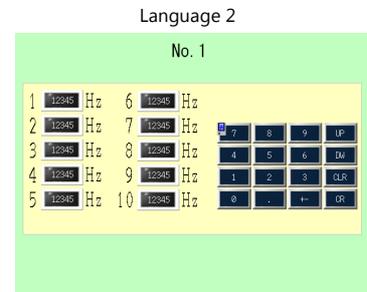
- Before copying



Language 2



- After copying



Setting Example

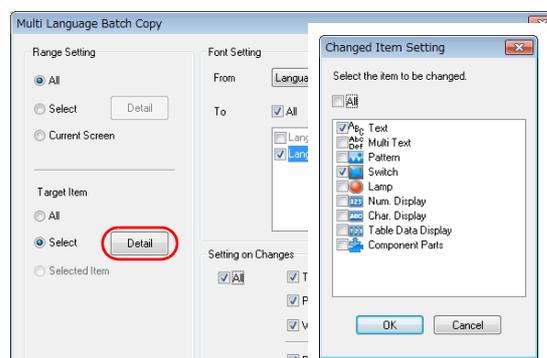
The procedure is explained with an example shown below.

In this example, the text and characters on the switches placed on all screens in language 1 are copied to screens in language 2.

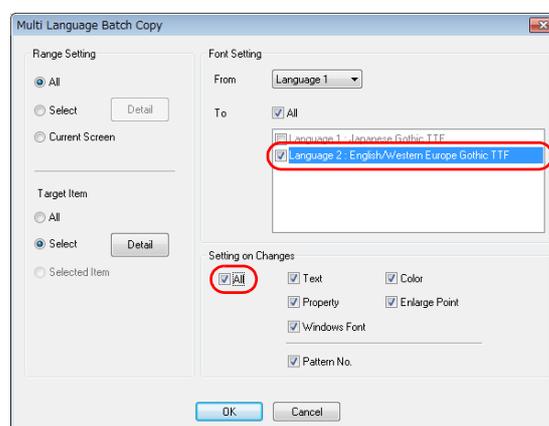
Language 1: Japanese (Gothic) TTF

Language 2: English/Western Europe Gothic TTF

1. Select [Tool] → [Multi Language] → [Multi Language Batch Copy] to display the [Multi Language Batch Copy] window.
2. Select [All] under [Range Setting] and set the target items to [Select] → [Detail] → [Text] and [Switch].



3. In the [Font Setting] area in the [Multi Language Batch Copy] window, select [Language 1] for [From] and [Language 2] for [To].
4. Batch copy in this example targets all properties. In the [Setting on Changes] area, select the [All] checkbox.



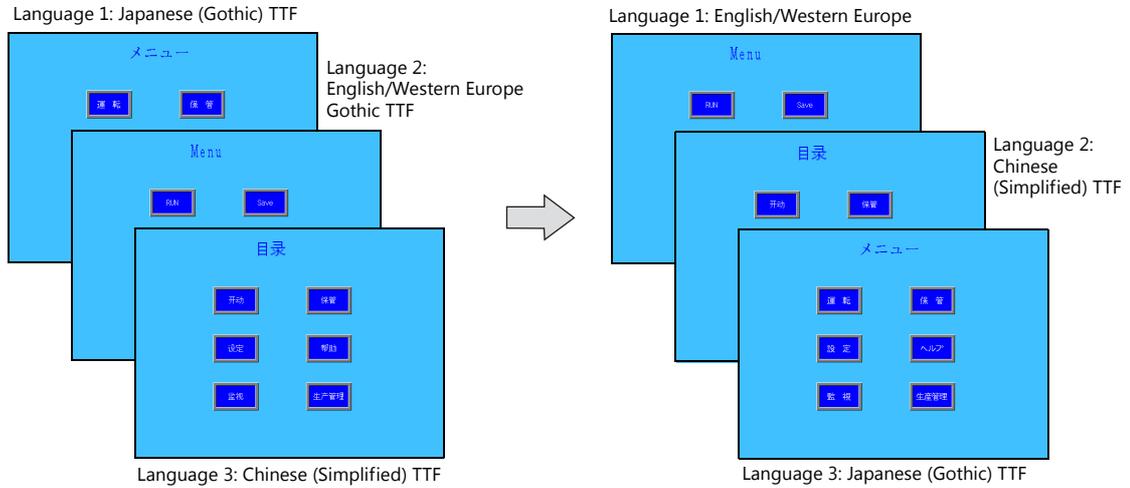
5. Review the settings made in the previous steps, and click [OK].

The settings are updated.

9.4.3 Multi-language Reordering

Overview

Interface languages from language 1 to language 16 can be reordered easily.

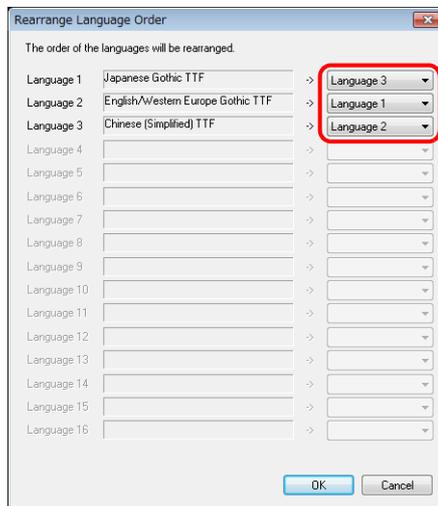


Setting Example

The procedure is explained with the settings shown below as an example.

- Language 1: Japanese (Gothic) TTF → Language 1: English/Western Europe Gothic TTF
- Language 2: English/Western Europe Gothic TTF → Language 2: Chinese (Simplified) TTF
- Language 3: Chinese (Simplified) TTF → Language 3: Japanese (Gothic) TTF

1. Select [Tool] → [Multi Language] → [Rearrange Language Order] to display the [Rearrange Language Order] window.
2. Select the language number using the pull-down menus next to [Language 1], [Language 2], and [Language 3].



3. Review the settings made in the previous steps, and click [OK].

The settings are updated.

10 Tag

10.1 Overview

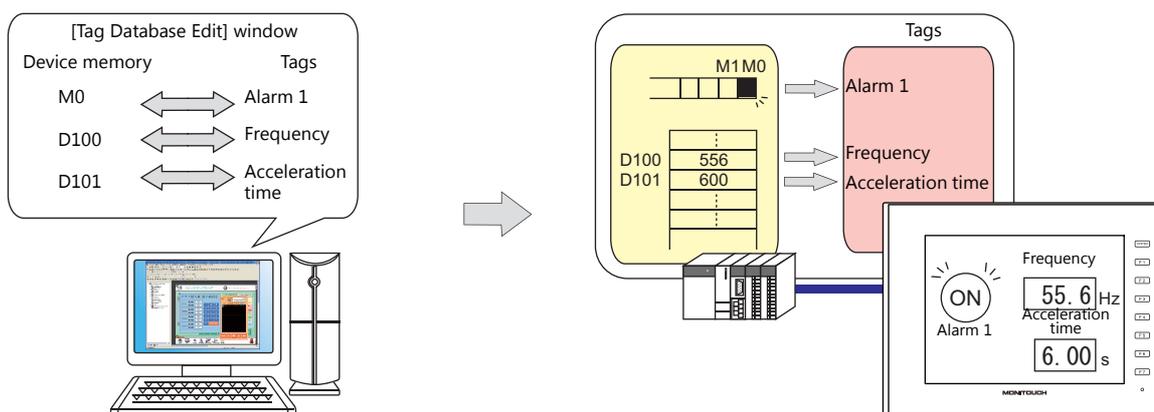
"Tag editing" is a function used to assign names (tags) to PLC or internal device memory (\$u, \$L, etc.) used on the V9 series unit and use these names for screen program creation. Tags can be divided into three general types: device memory designated tags, variable designated tags, and array designated tags.

10.1.1 Tag Types

Device Designation

Assign a tag name to a PLC device memory or internal device memory, and set the device memory for the part or item using the assigned name.

Example: In the [Tag Database Edit] window, register PLC device memory addresses "M0", "D100" and "D101" with names "Alarm 1", "Frequency" and "Acceleration Time", respectively.



Set device memory addresses for parts using tags.

Lamp device memory: "Alarm 1" (M0)

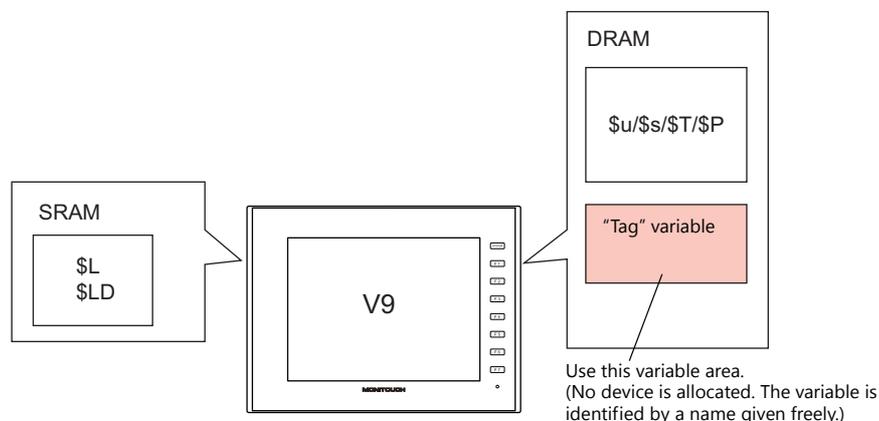
Numerical data display device memory: "Frequency" (D100), "Acceleration time" (D101)

For details on the procedure for editing tags, refer to ["10.2 Editing Tags" page 10-3](#).

Variable Designation

Assign a tag name to a variable in the variable area of the V9 unit, and set the device memory variable for parts and items using the assigned names. This is useful for specifying a working area for V9 internal processing, such as for macro and password functions etc.

Example: Variable area in the V9 series unit



For details on the editing procedure, refer to ["10.2 Editing Tags" page 10-3](#).

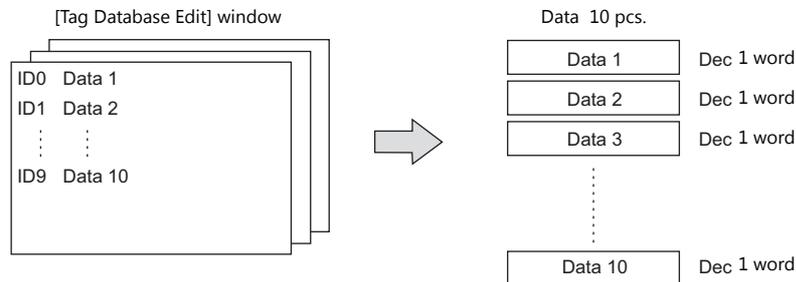
Variables

A "variable" is an area that stores data temporarily. This area is used for temporarily storing data, such as a default value or calculated value. The capacity of the variable area is 4096 words for both single words and double words, respectively. For details, refer to [""Tag" Variable Capacity" page 10-18](#).

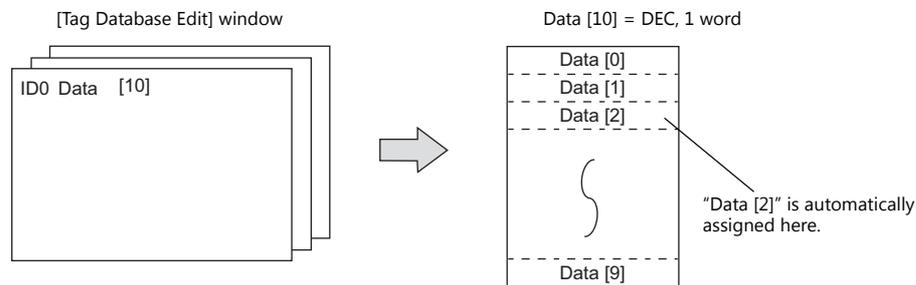
Array Designation

The array format can be specified for the tag. If there is multiple data of the same type, they can be registered at one time. This makes data management and maintenance easier.

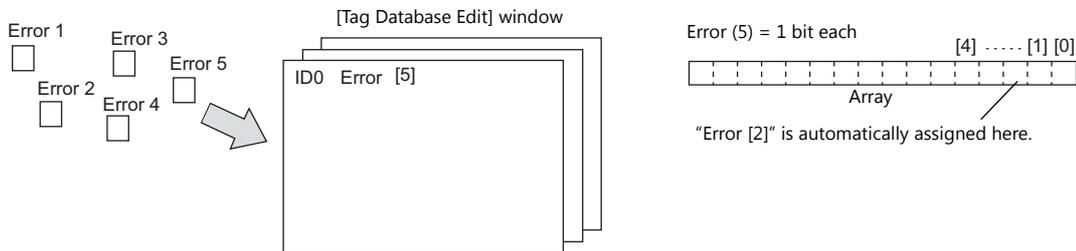
For example, when allocating 10 variables that have the same properties (DEC, 1 word) without using the array format, 10 variables must be registered individually as shown below.



When registering one tag with 10 elements in the array format, 10 variables can be secured in the same way as shown above. If there is multiple data of the same type, the array format can be used to make configuration easier.



In the case of the bit variable:



For details on the editing procedure, refer to ["10.2.3 Configuring Arrays" page 10-6](#).

10.1.2 Importing Tags

Tags or system labels registered in PLC software can be imported using V-SFT and used as tags.

- For details, refer to the following.
- ["MITSUBISHI ELECTRIC" page 10-9](#)
 - Siemens
 - ["Model S7" page 10-13](#)
 - ["Model S7-200" page 10-16](#)

10.2 Editing Tags

Click [Home] → [Registration Item ▼] → [Tag Database], specify a group number, and register tags in the [Tag Database Edit] window.

There are three ways to edit tags.

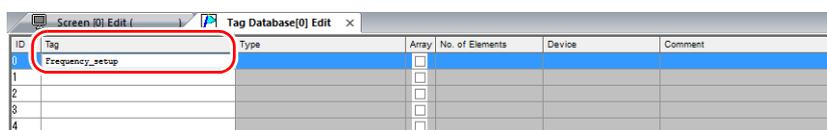
Refer to the following.

-  ["10.2.1 Direct Registration in the \[Tag Database Edit\] Window" page 10-3](#)
-  ["10.2.2 Editing in a CSV File" page 10-4](#)
-  ["10.5 Importing Tags" page 10-9](#)

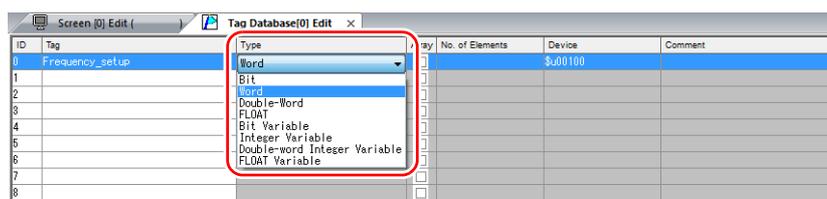
10.2.1 Direct Registration in the [Tag Database Edit] Window

This section describes the procedure for registering "D100" and "D101" (word device memory) and "M0" (bit device memory) of the PLC1 device memory using tags.

1. Click the [Tag] field and register a tag name.



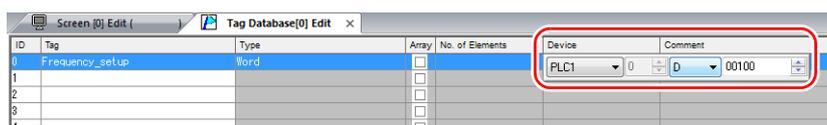
2. Click the [Type] field and select a data type from the list.



- * To register the same type of data at once with consecutive device memory addresses, use the array format.

 For details, refer to "10.2.3 Configuring Arrays".

3. Click the [Device] field and set a device memory address.



4. Click the [Comment] field and enter a comment describing the tag.

5. To register a new device memory address using a tag, select another ID number and repeat steps 1 to 5.

ID	Tag	Type	Array	No. of Elements	Device	Comment
0	Frequency_setup	Word	<input type="checkbox"/>		D00100	Inverter Port No.1
1	Acceleration_time	Word	<input type="checkbox"/>		D00101	Inverter Port No.1
2	Alarm1	Bit	<input type="checkbox"/>		M00000	ON:Abnormal OFF:Normal
3			<input type="checkbox"/>			
4			<input type="checkbox"/>			

This completes the necessary settings.

Tags can be specified in the settings window of each part.

- Word designation:

Device

- Bit designation:

Lamp Device (Bit device)

Lamp Device (Word Device)

* -xx is the manually entered part of the bit.
xx: 00 - 15, 00 - 31

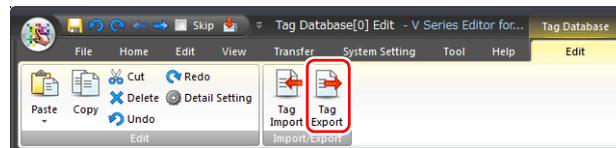
10.2.2 Editing in a CSV File

The data registered in the [Tag Database Edit] window for a screen program can be exported to a CSV file. The CSV file can be edited on a PC and then imported back into the screen program. In the example below, changes are made to the data registered with ID No. 0 in the [Tag Database Edit] window using Excel.

- Tag: Frequency_setup → Run_status
- Device: D100 → D105
- Comment: Inverter Port No. 1 → ON: RUN, OFF: STOP

ID	Tag	Type	Array	No. of Elements	Device	Comment
0	Frequency_setup	word	<input type="checkbox"/>		D00100	Inverter Port No.1
1	Acceleration_time	word	<input type="checkbox"/>		M00000	Inverter Port No.1
2	Alarm1	Bit	<input type="checkbox"/>		M00000	ON: Abnormal OFF: Normal
3	Alarm2	Bit	<input type="checkbox"/>		M00001	ON: Abnormal OFF: Normal
4	Flag1	Bit Variable	<input type="checkbox"/>			Within macro
5	Count_value1	Integer Variable	<input type="checkbox"/>			Within macro
6	Title	Word	<input checked="" type="checkbox"/>	5	D00200	Production_A-line

1. Click [Edit] → [Tag Export].

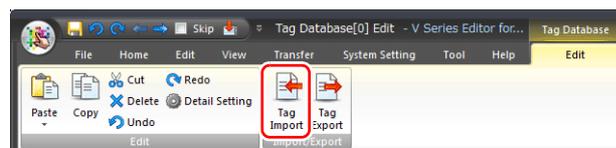


2. Enter an arbitrary filename in the window, select "Csv File (*.csv)" for the [Save as type] field, and click [Save].
3. Open the CSV file in Excel, edit each field for ID number 0, and save the file.

ID	SYMBOL	VER	REV	Type	Array Setting	No. of Elements	Address	Comment
0	Frequency_setup	1	0	word			PLC1 [D00100]	Inverter Port No.1
1	Acceleration_time	1	0	word			PLC1 [D00101]	Inverter Port No.1
2	Alarm1	0	0	Bit			PLC1 [M00000]	ON: Abnormal OFF: Normal
3	Alarm2	0	0	Bit			PLC1 [M00001]	ON: Abnormal OFF: Normal
4	Flag1	3	0	Bit Variable				Within macro
5	Count_value1	4	0	Integer Variable				Within macro
6	Title	1	1	Word	<input checked="" type="checkbox"/>	5	PLC1 [D00200]	Production_A-line

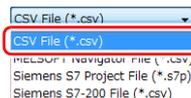
For details on the data in CSV files, refer to "CSV File Configuration" page 10-5.

4. Open the [Tag Database Edit] window and click [Edit] → [Tag Import].



5. Select the CSV file saved in step 3, select "Csv File (*.csv)" for the [Files of type] field, and click [Open].

File types



This completes the necessary settings.

ID	Tag	Type	Array	No. of Elements	Device	Comment
0	Run_status	word	<input type="checkbox"/>		D00105	ON: RUN, OFF: STOP
1	Acceleration_time	word	<input type="checkbox"/>		M00000	Inverter Port No.1
2	Alarm1	Bit	<input type="checkbox"/>		M00000	ON: Abnormal OFF: Normal
3	Alarm2	Bit	<input type="checkbox"/>		M00001	ON: Abnormal OFF: Normal
4	Flag1	Bit Variable	<input type="checkbox"/>			Within macro
5	Count_value1	Integer Variable	<input type="checkbox"/>			Within macro
6	Title	Word	<input checked="" type="checkbox"/>	5	D00200	Production_A-line

* IDs that already have tags are overwritten with the imported data.

CSV File Configuration

A CSV file opened in Excel is formatted as shown below.

[Tag Database Edit] data exported to a CSV file

	A	B	C	D	E	F	G
1	SYMBOL=1	VER=1	REV=0				
2	ID	Tag	Type	Array Setting	No. of Elements	Address	Com
3	0	Frequency_setup	1	0	0	PLC1 [D00100]	Inver
4	1	Acceleration_time	1	0	0	PLC1 [D00101]	Inver
5	2	Alarm1	0	0	0	PLC1 [M00000]	ON:A
6	3	Alarm2	0	0	0	PLC1 [M00001]	ON:A
7	4	Flag1	3	0	0		Withi
8	5	Count_value1	4	0	0		Withi
9	6	Title	1	1	5	PLC1 [D00200]	Production_A-line
10	[0]						
11	[1]						
12	[2]						
13	[3]						
14	[4]						

The number of elements in an array must be the same as the number shown in [No. of Elements].

* Do not change the header information enclosed in the red dotted frame. Otherwise, the data in the CSV file cannot be correctly imported into the screen program.

Column	Item	Description	Remarks
A	ID	0 - 65535 Numbers within square brackets []: Element No. 0 to 4095 with the use of arrays	1-byte
B	Tag *1	Within 70 one-byte characters	1-byte / 2-byte
C	Data Type	0: Bit device memory 1: Word Device memory 2: Double-word device memory 3: Bit variable 4: Integer variable 5: Double-word integer variable 6: Real number variable 7: Real number device memory	1-byte
D	Array Setting	0: Not used, 1: Used	1-byte
E	No. of Elements	1 - 4096	1-byte, only when "1" is specified for [D. Array Setting]
F	Address	<p>PLC device memory</p> <p>PLCx [xxxxx] PLCNo.1 - 8 Device memory + address</p> <p>Example: Specifying PLC1 Mitsubishi D100</p> <ul style="list-style-type: none"> 1:1 connection Word designation: PLC1 [D00100] Bit designation: PLC1 [D00100-00] 1:n connection (port No. 0) Word designation: PLC1 [0:D00100] Bit designation: PLC1 [0:D00100-00] <p>Internal device memory: \$u/\$T/\$s/\$L/\$LD xxxxx Device memory + address</p> <p>Example: Specifying internal device memory \$u100 Word designation: \$u00100, bit designation: \$u00100-00</p> <p>Memory card device</p> <p>[xx:xxxx] #xxxx File No. 0 to 15 Data No. 0 to 4096 Record No. 0 to 4095</p> <p>Example: Specifying File No. 0, Record No. 0, and Data No. 100 Word designation: [0:0] #0100, bit designation: [0:0] #0100-00</p> <p>I/O device memory</p> <p>PLCx [xxxxx] PLCNo.1 - 8 Device memory + address</p> <p>Example: Specifying PLC1 Fuji Electric T-link TI00 Word designation: PLC1 [TI00], bit designation: PLC1 [TI00-00]</p> <p>Common device memory: CW/CB/MW/MB/VW</p> <p>PLCx [xxxxx] PLCNo.1 - 8 Device memory + address</p> <p>Example: <ul style="list-style-type: none"> Specifying CW100 Word designation: PLC1 [CW0100], bit designation: PLC1 [CW0100-00] Specifying MW100 (port No. 1) Word designation: PLC1 [1:MW0100], bit designation: PLC1 [1:MW0100-00] </p>	1-byte
G	Comment	Within 130 one-byte characters	1-byte / 2-byte

*1 Data that includes unusable characters cannot be imported. Refer to "Detailed Settings" (page 10-7).

10.2.3 Configuring Arrays

This section describes the procedure when "5" is specified for [No. of Elements] for the PLC1 device memory "D200", and "3" for the integer variable in the array format.

1. Select the [Array] checkbox and specify the number for the [No. of Elements] field.

ID	Tag	Type	Array	No. of Elements	Device	Comment
0	ProductName	Word	<input checked="" type="checkbox"/>	5	D00200	ALine
1	Parameter	Integer Variable	<input checked="" type="checkbox"/>	3		ALine
2			<input type="checkbox"/>			
3			<input type="checkbox"/>			
4			<input type="checkbox"/>			
5			<input type="checkbox"/>			
6			<input type="checkbox"/>			



- A maximum of 4096 elements can be set.
- If the bit variable is specified in the array format, 1 word is occupied in the variable area even if "16" or a smaller number is specified for the number of elements.
For details, refer to "Tag Settings" page 10-18.

2. Double-click on the ID number and enter a description in the [Comment] field of the [Detail Setting] window.

ID	Tag	Type	Array	No. of Elements	Device	Comment
0	ProductName	Word	<input checked="" type="checkbox"/>	5	D00200	ALine
1	Parameter	Integer Variable	<input checked="" type="checkbox"/>	3		ALine

Element No.	Comment
0	D200 (Read)
1	D201
2	D202
3	D203
4	D204

Total [0] (= D200)

Total [1] (= D201)

Total [2] (= D202)

Total [3] (= D203)

Total [4] (= D204)

- * The [Detail Setting] window can also be displayed from the [Tag Database Edit] tab or by right-clicking and selecting [Detail Setting].

This completes the necessary settings.

Tag arrays can be specified in the settings window of each part.

- Tag [n] (n: number of elements in the array)

Device Tag Parameter[0]

* Manually enter a value for [n].

10.2.4 Importing Tags

Tags or system labels registered in PLC software can be imported using V-SFT and used as tags.



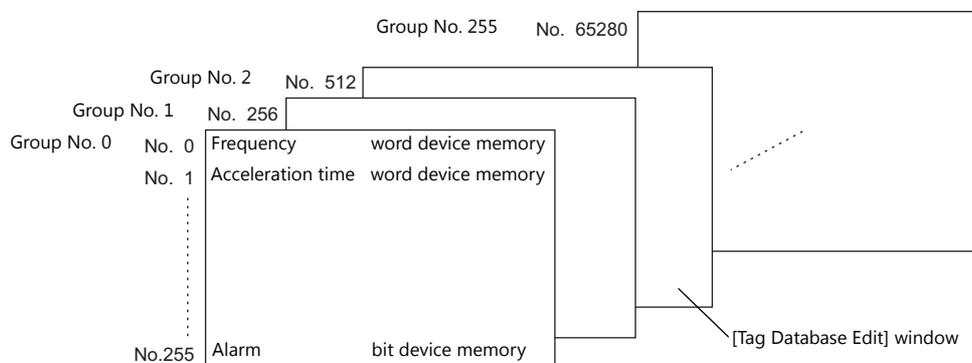
For details, refer to "10.5 Importing Tags" page 10-9.

10.3 Detailed Settings

[Tag Database Edit] Window

The [Tag Database Edit] window consists of 256 groups, and 256 lines can be registered per group. Accordingly, a maximum of 65536 lines can be registered in total.

Location of settings: [Home] → [Registration Item ▼] → [Tag Database]

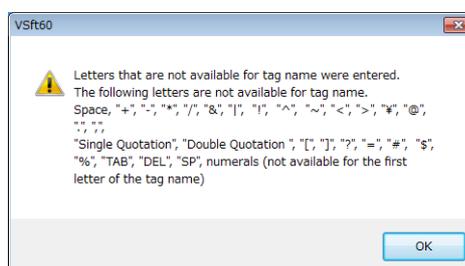


ID	Tag	Type	Array	No. of Elements	Device	Comment
0			<input type="checkbox"/>			
1			<input type="checkbox"/>			
2			<input type="checkbox"/>			
3			<input type="checkbox"/>			
4			<input type="checkbox"/>			
5			<input type="checkbox"/>			
6			<input type="checkbox"/>			
7			<input type="checkbox"/>			
8			<input type="checkbox"/>			
9			<input type="checkbox"/>			
10			<input type="checkbox"/>			
11			<input type="checkbox"/>			
12			<input type="checkbox"/>			

Item	Description																														
ID	Line No. 0 to 65535																														
Tag	Specify a tag name. Max. 70 one-byte characters (two-byte characters allowed, one-byte/two-byte/uppercase/lowercase are treated as different characters.)																														
Type, Device	Specify the data type for the tag. <table border="1"> <thead> <tr> <th>Device memory</th> <th>Type</th> <th>Data Type</th> </tr> </thead> <tbody> <tr> <td>PLC device memory</td> <td>Bit</td> <td>1-bit data</td> </tr> <tr> <td>Internal device memory</td> <td>Word</td> <td>1-word data</td> </tr> <tr> <td>Memory card</td> <td>Double-word</td> <td>Double-word data</td> </tr> <tr> <td>I/O device memory</td> <td>Real number</td> <td>32-bit single precision real number format</td> </tr> <tr> <td>Common device memory</td> <td></td> <td></td> </tr> <tr> <td>Variable</td> <td>Bit variable</td> <td>1-bit data</td> </tr> <tr> <td></td> <td>Integer variable</td> <td>1-word data</td> </tr> <tr> <td></td> <td>Double-word integer variable</td> <td>Double-word data</td> </tr> <tr> <td></td> <td>Real number variable</td> <td>32-bit single precision real number format</td> </tr> </tbody> </table>	Device memory	Type	Data Type	PLC device memory	Bit	1-bit data	Internal device memory	Word	1-word data	Memory card	Double-word	Double-word data	I/O device memory	Real number	32-bit single precision real number format	Common device memory			Variable	Bit variable	1-bit data		Integer variable	1-word data		Double-word integer variable	Double-word data		Real number variable	32-bit single precision real number format
Device memory	Type	Data Type																													
PLC device memory	Bit	1-bit data																													
Internal device memory	Word	1-word data																													
Memory card	Double-word	Double-word data																													
I/O device memory	Real number	32-bit single precision real number format																													
Common device memory																															
Variable	Bit variable	1-bit data																													
	Integer variable	1-word data																													
	Double-word integer variable	Double-word data																													
	Real number variable	32-bit single precision real number format																													
Array	Use an array. For details on setting arrays, refer to "10.2.3 Configuring Arrays" page 10-6.																														
No. of Elements	When [Array] is checked, specify the number of elements to be used in the array. Max. 4096																														
Comment	Enter a description for the tag. Max. 130 one-byte characters (two-byte characters allowed, one-byte/two-byte/uppercase/lowercase are treated as different characters.)																														



If an unavailable character is used, the following message box will appear. In this case, perform registration again.



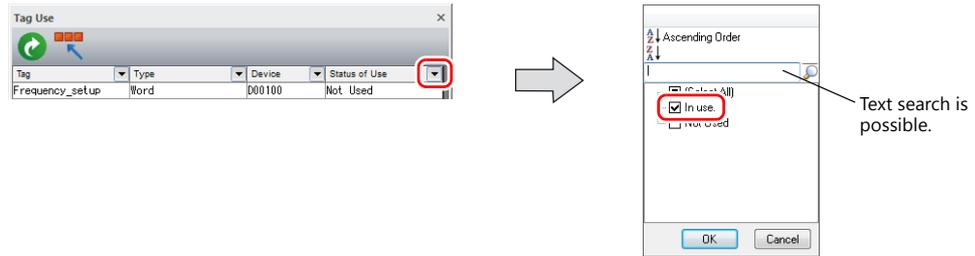
10.4 Tag Status List

The tag status list of the entire screen program can be searched and the total word count of tag variables can be checked.

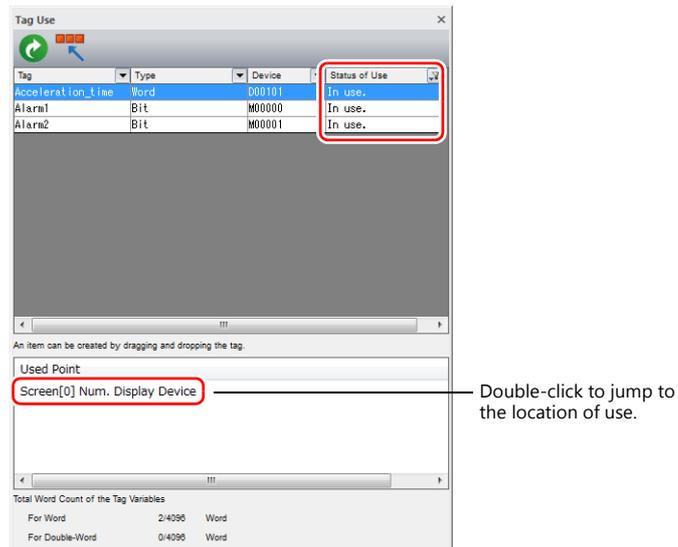
 For details, refer to "Checking the Capacity of "Tag" Variable" page 10-18.

The procedure of searching only for tags currently in use is explained as an example.

1. Click [Tool] → [Search] → [Tag Use] to display the [Tag Use] window.
2. Click the [▼] filter button next to [Status of Use].
Only select the [In use] checkbox and click [OK].



The necessary settings have been completed.
The search results are displayed. Selecting a tag displays the location of use.



10.5 Importing Tags

Tags or system labels registered in PLC software can be imported using V-SFT and used as tags.

Manufacturers of supported PLCs

- "MITSUBISHI ELECTRIC" page 10-9
- Siemens
 - "Model S7" page 10-13
 - "Model S7-200" page 10-16

MITSUBISHI ELECTRIC

Global labels registered in Simple Project (with labels) or Structured Project in MITSUBISHI ELECTRIC's software GX Works2 can be registered as system labels in the software MELSOFT Navigator. These system labels can be exported in CSV file format. When such CSV files are imported using V-SFT, system labels in the files can be used as tags in V-SFT.

* **For details on using PLC software, refer to the relevant PLC manual.**



When whole program compiling is executed in GX Works2, device memory addresses registered with global labels will be reassigned to global labels. If there are global labels with no PLC device memory addresses assigned, addresses of such labels will be assigned according to the automatic assignment setting made in GX Works2.

Therefore, assigning PLC device memory addresses to global labels is recommended.

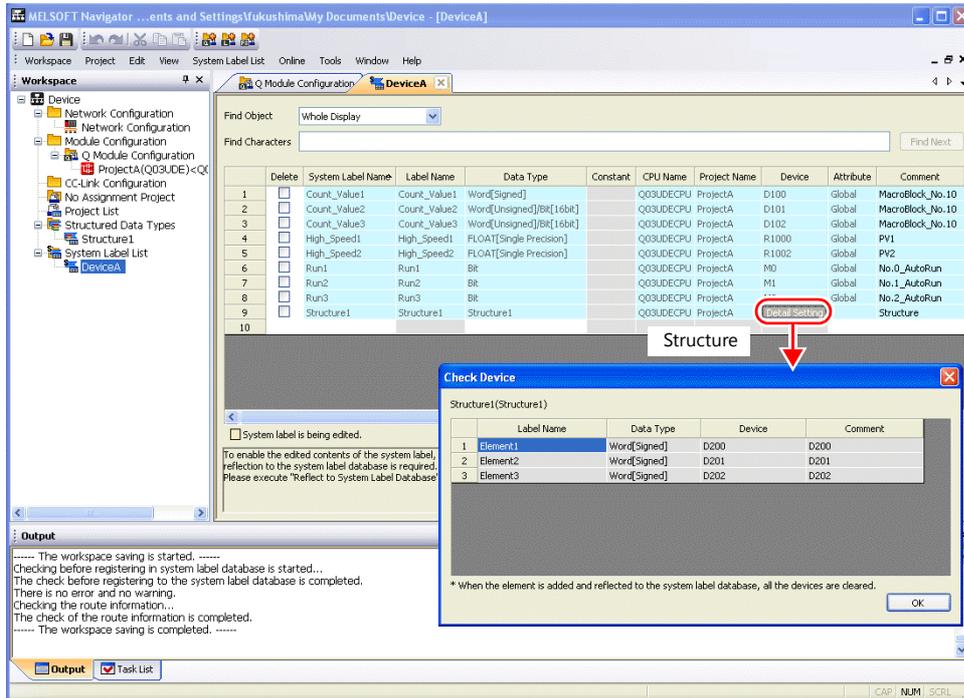
Supported PLC Models

Manufacturer	PLC Model
MITSUBISHI ELECTRIC	QnH (Q) series link
	QnH (Q) series CPU
	QnU series CPU
	Q00J/00/01 CPU
	QnH (Q) series (Ethernet)
	QnH (Q) series (Ethernet ASCII)
	QnU series (built-in Ethernet)
	QnH (Q) series (CC-LINK)
	L series link
	L series (built-in Ethernet)
	FX3U/3UC/3G series CPU
	FX3U/3UC/3G series link (A protocol)

* **Importing using V-SFT is allowed provided that [PLC1] and a 1:1 connection mode are set in the [System Setting] → [Hardware Setting] window. Importing is not possible for PLC2 and subsequent PLCs.**

Procedure

This section describes the steps to import "Device A" data registered in the system label list into a screen program.



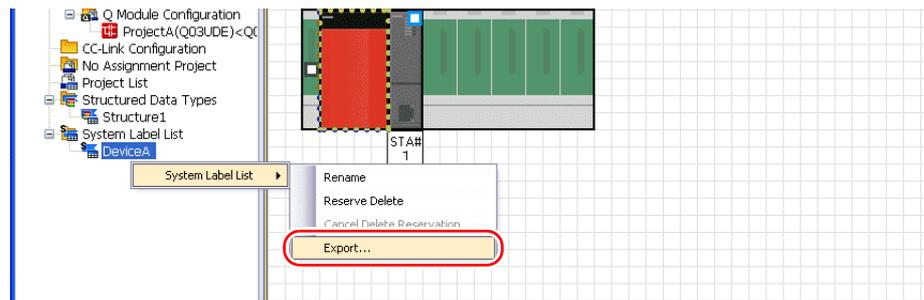
* The following table lists the types of data that can be imported using V-SFT and the data types after importing.

MITSUBISHI ELECTRIC "System Label"		Data Type for Tags in V-SFT
Data Type *1	Length	
Bit	1 bit	Word
Word [Signed]	1 word	
Word [Unsigned]	1 word	
Timer	1 word	
Counter	1 word	
Retentive Timer *2	1 word	
Double Word [Signed]	2 words	Double-word
Double Word [Unsigned]	2 words	
Time	2 words	Real number
FLOAT [Single Precision]	2 words	

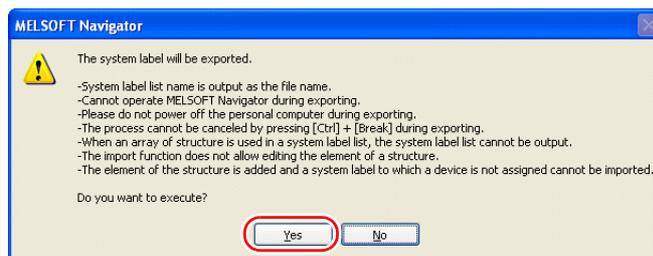
*1 No other types of data can be imported using V-SFT.

*2 With the PLC model QnH (Q) series (CC-LINK), data of the type "Retentive Timer" cannot be imported.

1. Start MELSOFT Navigator.
2. Right-click [DeviceA] under [System Label List], and then click [System Label List] → [Export].



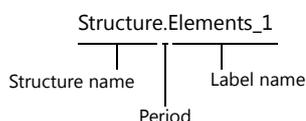
- A message dialog box is displayed. Click the [Yes] button.



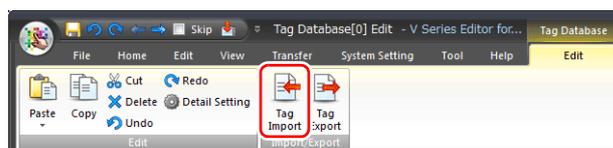
- The [Select Export Destination Folder] window is displayed. Select "CSV" for [Save as type] and click [Save].
- Open the destination folder. Check that the CSV file with the same name in the system label list is created. (Example: DeviceA.csv)

System Label Name	Label Name	Data Type	Constant	CPU Name	Project Name	Device	Attribute	Comment	Remark
Count_Value1	Count_Value1	Word[Signed]		G03UDECPU	ProjectA	D100	Global	MacroBlock_No.10	
Count_Value2	Count_Value2	Word[Unsigned]/Bit[16bit]		G03UDECPU	ProjectA	D101	Global	MacroBlock_No.10	
Count_Value3	Count_Value3	Word[Unsigned]/Bit[16bit]		G03UDECPU	ProjectA	D102	Global	MacroBlock_No.10	
High_Speed1	High_Speed1	FLOAT[Single Precision]		G03UDECPU	ProjectA	R1000	Global	PV1	
High_Speed2	High_Speed2	FLOAT[Single Precision]		G03UDECPU	ProjectA	R1002	Global	PV2	
Run1	Run1	Bit		G03UDECPU	ProjectA	M0	Global	No.0_AutoRun	
Run2	Run2	Bit		G03UDECPU	ProjectA	M1	Global	No.1_AutoRun	
Run3	Run3	Bit		G03UDECPU	ProjectA	M2	Global	No.2_AutoRun	
Structure1	Structure1	Structure1		G03UDECPU	ProjectA			Structure	
Structure1 Element1	Structure1	Word[Signed]		G03UDECPU	ProjectA	D200		D200	
Structure1 Element2	Structure1	Word[Signed]		G03UDECPU	ProjectA	D201		D201	
Structure1 Element3	Structure1	Word[Signed]		G03UDECPU	ProjectA	D202		D202	

- * The dotted line frame indicates the structure. A structure name with a period is added to the top of each label name.



- Open the screen program in V-SFT. Click [Home] → [Registration Item] → [Tag Database] to display the [Tag Database Edit] window.
- Click [Edit] → [Tag Import].



- The [Open] window is displayed. Select "MELSOFT Navigator File (*.csv)" for [Files of type]. Select the desired CSV filename (e.g. "DeviceA.csv") and click [Open].



The contents of the file are registered as tags in the "tag database edit" window. Types ([Type]) are specified for individual device memory addresses. This completes the import procedure.

ID	Tag	Type	Array	No. of Elements	Device	Comment
0	Count_Value1	Word	<input type="checkbox"/>		D00100	MacroBlock_No.10
1	Count_Value2	Word	<input type="checkbox"/>		D00101	MacroBlock_No.10
2	Count_Value3	Word	<input type="checkbox"/>		D00102	MacroBlock_No.10
3	High_Speed1	FLD0AT	<input type="checkbox"/>		R01000	PV1
4	High_Speed2	FLD0AT	<input type="checkbox"/>		R01002	PV2
5	Run1	Bit	<input type="checkbox"/>		M00000	No.0_AutoRun
6	Run2	Bit	<input type="checkbox"/>		M00001	No.1_AutoRun
7	Run2	Bit	<input type="checkbox"/>		M00002	No.2_AutoRun
8	Structure1_Element1	Word	<input type="checkbox"/>		D00200	D200
9	Structure1_Element2	Word	<input type="checkbox"/>		D00201	D201
10	Structure1_Element3	Word	<input type="checkbox"/>		D00202	D202
11			<input type="checkbox"/>			
12			<input type="checkbox"/>			
13			<input type="checkbox"/>			

*** Periods "." cannot be used with tags. If any system label exported from MELSOFT Navigator includes a period, the period is converted to an underscore "_".**

Notes

Note the following for importing CSV files.

- If a file to be imported includes a tag that is already registered, the existing tag is overwritten. Unregistered tags are registered to blank ID numbers (in the [Tag Database Edit] window).
- Only device memory addresses available on the V9 series unit can be imported. For details, refer to the V9 Series Connection Manual.

Siemens

Supported PLC Models

Manufacturer	PLC Model	Refer to
Siemens	S7	page 10-13
	S7-300/400 MPI	
	S7-300/400 (Ethernet ISOTCP)	
	S7-300/400 (Ethernet TCP/IP PG protocol)	
	S7 PROFIBUS-DP	
	S7-200 PPI	page 10-16

* Importing using V-SFT is allowed provided that [PLC1] and a 1:1 connection mode are set in the [System Setting] → [Hardware Setting] window. Importing is not possible for PLC2 and subsequent PLCs.

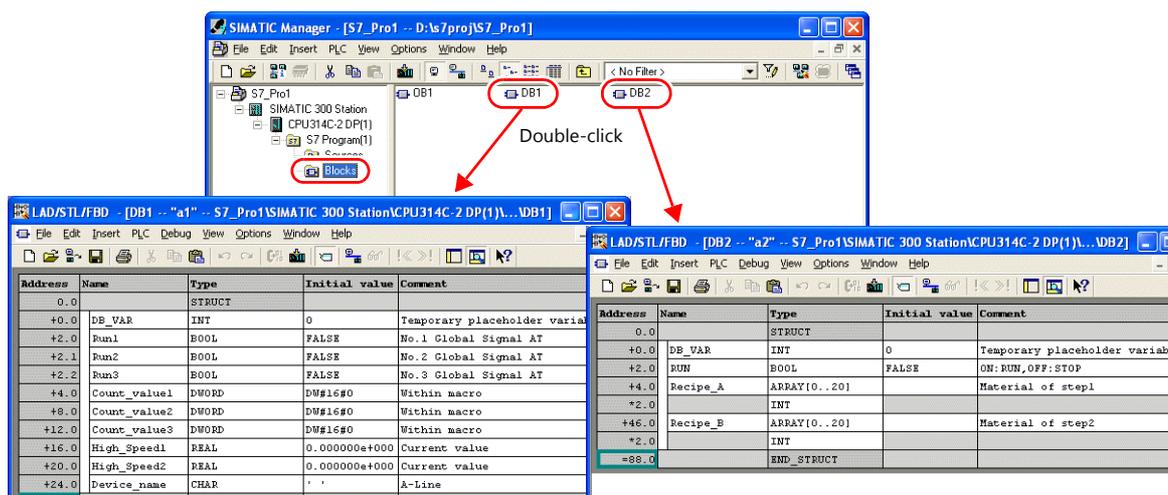
Model S7

When a project file (*.s7p) created in Siemens software "SIMATIC Manager (version 5.5 or 5.4)" is imported using V-SFT, names registered in data blocks "DBx" can be used as tags in V-SFT.

👉 For details on using PLC software, refer to the relevant PLC manual.

Procedure

This section describes the steps to import a project file (e.g. "test.s7p"), in which data blocks DB1 and DB2 are registered, to a screen program.



* The following table lists the types of data that can be imported using V-SFT and the data types after importing.

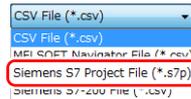
Siemens "DBxx"		Data Type for Tags in V-SFT
Data Type ^{*1}	Length	
BOOL	1 bit	Bit
BYTE *	1 byte	Word
CHAR *	1 byte	
WORD	1 word	
S5TIME	1 word	
DATE	1 word	
INT	2 words	
DWORD	2 words	
DINT	2 words	
TIME	2 words	
TIME_OF_DAY	2 words	Real number
REAL	2 words	

* No other types of data can be imported with V-SFT. Data types BYTE and CHAR (bytes) are imported as word device memory. If any odd bytes are registered in the PLC software, the data cannot be imported.

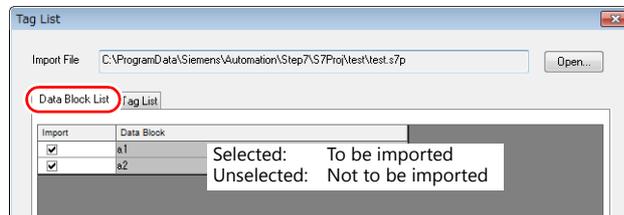
1. Start V-SFT and open the screen program.
Click [Home] → [Registration Item] → [Tag Database] to display the [Tag Database Edit] window.
2. Click [Edit] → [Tag Import].



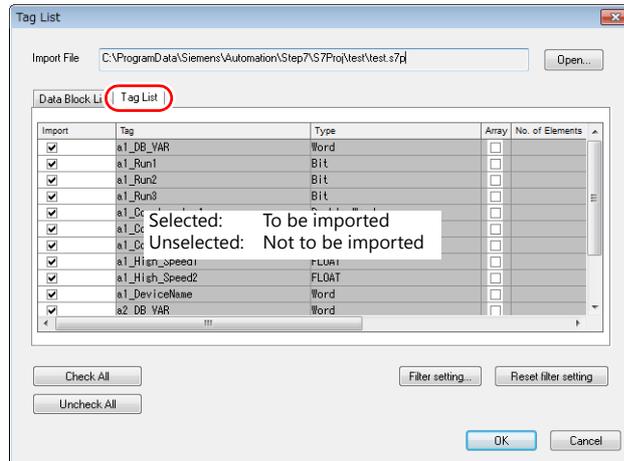
3. The [Open] window is displayed.
Specify "Siemens S7 Project File (*.s7p)" for [Files of type].
Select the desired project file (e.g. "test.s7p") and click [Open].



4. The [Tag List] window is displayed. Select the tags to import.
 - [Data Block List]: Displayed block by block (data block "DBx")



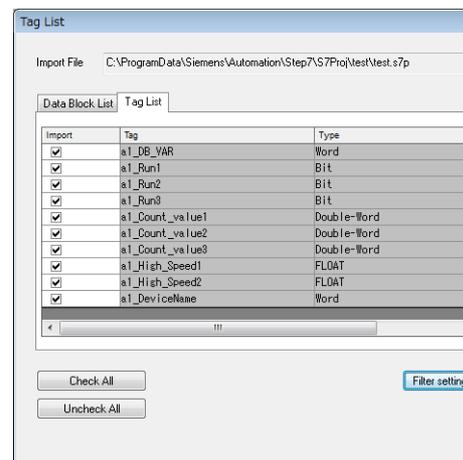
- [Tag List]: All tags displayed_



* When specifying further search criteria, go to [Filter setting]. Only tags that match the specified data type, data block name, or tag name will be displayed in the [Tag List] window.



Filtering out "a1"



A one-byte space is treated as an OR condition.
(Case-sensitive)

5. Click [OK].

The contents of the file are registered as tags in the "tag database edit" window. Types ([Type]) are specified for individual device memory addresses.

This completes the import procedure.

Example: Only DB1 imported

ID	Tag	Type	Array	No. of Elements	Device	Comment
0	a1_DB_VAR	Word	<input type="checkbox"/>		DB0001:0000	Place-Holder Variables
1	a1_Run1	Bit	<input type="checkbox"/>		DB0001:0002-0	No.0 Global Signal AT
2	a1_Run2	Bit	<input type="checkbox"/>		DB0001:0002-1	No.1 Global Signal AT
3	a1_Run3	Bit	<input type="checkbox"/>		DB0001:0002-2	No.2 Global Signal AT
4	a1_Count_value1	Double-Word	<input type="checkbox"/>		DB0001:0004	Within macro
5	a1_Count_value2	Double-Word	<input type="checkbox"/>		DB0001:0008	Within macro
6	a1_Count_value3	Double-Word	<input type="checkbox"/>		DB0001:0012	Within macro
7	a1_High_Speed1	FLOAT	<input type="checkbox"/>		DB0001:0016	Current value
8	a1_High_Speed2	FLOAT	<input type="checkbox"/>		DB0001:0020	Current value
9	a1_DeviceName	Word	<input type="checkbox"/>		DB0001:0024	A-LINE
10			<input type="checkbox"/>			
11			<input type="checkbox"/>			
12			<input type="checkbox"/>			
13			<input type="checkbox"/>			

- * Periods "." cannot be used with tags. If any tag includes a period, the period is converted to an underscore "_".
- A tag name with an underscore "_" registered in a SIMATIC Manager data block (DBxx) is added to the top of each tag.

a1_DB_VAR
 |
 Name
 |
 Tag name with "_"

Address	Name	Type	Initial value	Comment
0.0		STRUCT		
+0.0	DB_VAR	INT	0	Temporary placeholder variable
+2.0	Run1	BOOL	FALSE	No.1 Global Signal AT
+2.1	Run2	BOOL	FALSE	No.2 Global Signal AT
+2.2	Run3	BOOL	FALSE	No.3 Global Signal AT
+4.0	Count_value1	DWORD	DB#16#0	Within macro
+8.0	Count_value2	DWORD	DB#16#0	Within macro
+12.0	Count_value3	DWORD	DB#16#0	Within macro
+16.0	High_Speed1	REAL	0.000000e+000	Current value
+20.0	High_Speed2	REAL	0.000000e+000	Current value
+24.0	Device_name	CHAR	' '	A-Line
=26.0		END_STRUCT		

Notes

Note the following for importing CSV files.

- If a file to be imported includes a tag that is already registered, the existing tag is overwritten. Unregistered tags are registered to blank ID numbers (in the [Tag Database Edit] window).
- Device memory addresses unavailable on the V9 series unit cannot be imported.
 For details on device memory available on the V9 series, refer to the V9 Series Connection Manual. Data types BYTE and CHAR (bytes) are imported as word device memory. If any odd bytes are registered to device memory in the PLC software, the data cannot be imported.

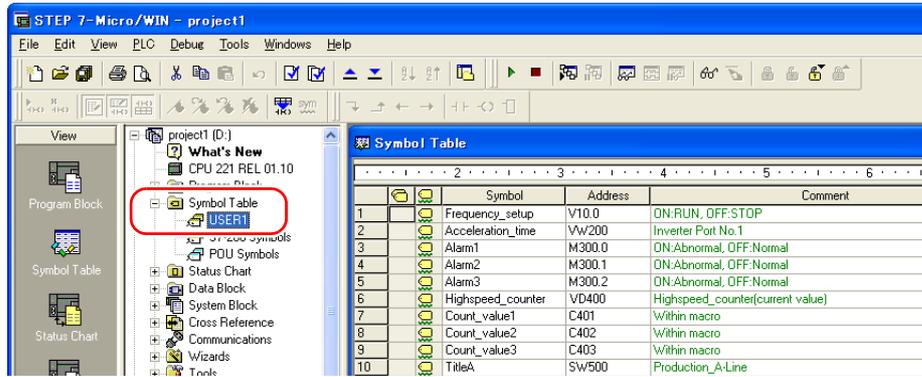
Model S7-200

When a CSV file copied from the Symbol Table in the software “SIMATIC STEP 7-Micro/WIN” for Siemens S7-200 is imported using V-SFT, the contents in the file can be used as tags.

* For details on using PLC software, refer to the relevant PLC manual.

Procedure

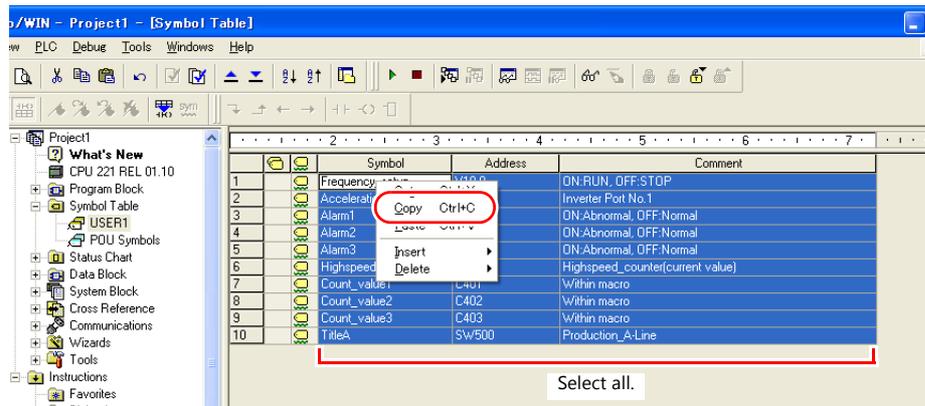
1. Start the software “SIMATIC STEP 7-Micro/WIN” for Siemens S7-200.
2. Open [Symbol Table].



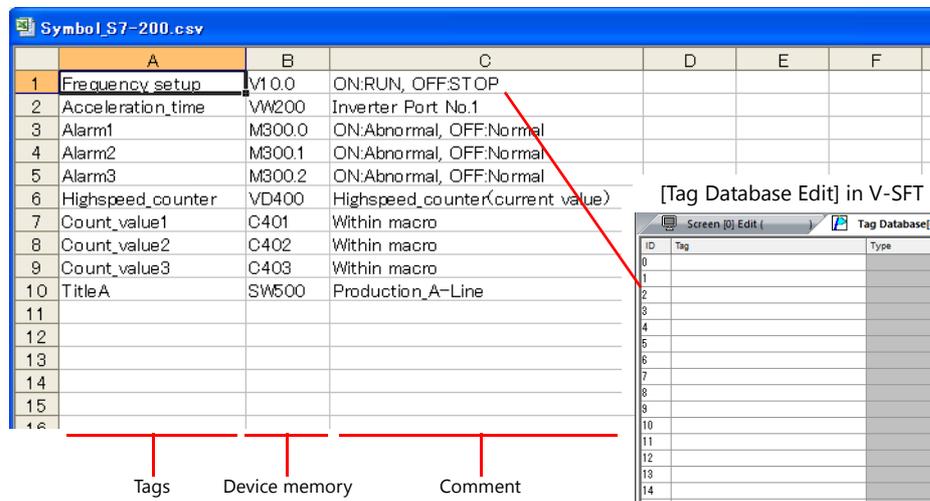
Only device memory addresses available on the V9 series unit can be imported using V-SFT. For details, refer to the V9 Series Connection Manual. Double-word device memory are imported as word device memory.

Device memory: VD → VW, ID → IW, QD → QW, MD → MW, SMD → SMW, SD → SW

3. Select all columns under [Symbol], [Address], and [Comment]. Right-click and select [Copy] from the right-click menu.

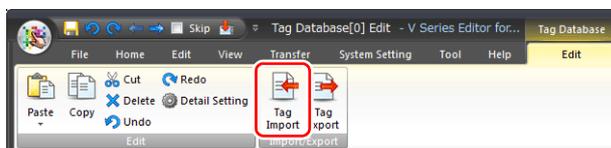


4. Start Excel. Paste the copied data to the worksheet from cell A1.

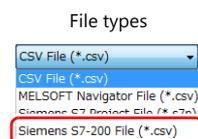


* The first row on the Excel sheet corresponds to tag ID No. 0. The copied data on the worksheet is imported from its first row to the [Tag Database Edit] window. (65536 maximum)

5. Click [File] → [Save As]. The [Save As] window is displayed.
6. Enter a filename. Select "CSV" for [Save as type] and click [Save].
7. Open the screen program. Click [Home] → [Registration Item] → [Tag Database] to display the [Tag Database Edit] window.
8. Click [Edit] → [Tag Import].



9. The [Open] window is displayed. Select the CSV file saved in step 6. Specify "Siemens S7-200 File (*.csv)" for [Files of type] and click [Open].



The contents of the file are registered as tags in the "tag database edit" window. Types (Type) are specified for individual device memory addresses.

This completes the import procedure.

ID	Tag	Type	Array	No. of Elements	Device	Comment
0	Frequency_setup	Bit	<input type="checkbox"/>		Y000100	Place-Holder Variables
1	Acceleration_time	Word	<input type="checkbox"/>		Y000200	No.0 Global Signal AT
2	Alarm1	Bit	<input type="checkbox"/>		M000000	No.1 Global Signal AT
3	Alarm2	Bit	<input type="checkbox"/>		M000001	No.2 Global Signal AT
4	Alarm3	Bit	<input type="checkbox"/>		M000002	Within macro
5	Highspeed_counter	Double-Word	<input type="checkbox"/>		Y000400	Within macro
6	Count_value1	Word	<input type="checkbox"/>		C00401	Within macro
7	Count_value2	Word	<input type="checkbox"/>		C00402	Current value
8	Count_value3	Word	<input type="checkbox"/>		C00403	Current value
9	TitleA	Word	<input type="checkbox"/>		SW00500	A-LINE
10			<input type="checkbox"/>			
11			<input type="checkbox"/>			
12			<input type="checkbox"/>			
13			<input type="checkbox"/>			

Notes

Note the following for importing CSV files.

- IDs that already have tags are overwritten with the imported data.
- Device memory addresses unavailable on the V9 series unit cannot be imported. If such a device memory address is included, the row is left blank.

For details on device memory available on the V9 series, refer to the V9 Series Connection Manual. Note that double-word device memory are imported as word device memory.

Device memory: VD → VW, ID → IW, QD → QW, MD → MW, SMD → SMW, SD → SW

10.6 Notes

Tag Settings

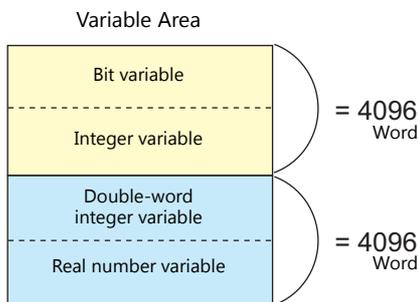
Tags cannot be specified for the following items.

- [Screen Setting] → [PLC Device Transfer]
- Device memory map (transfer source device memory, transfer destination device memory 1, transfer destination device memory 2, control device memory)
- Modbus device memory table

“Tag” Variable Capacity

When “tag” variables are registered in the [Tag Database Edit] window, the variable area in the MONITOUCH is used. Since the capacity of the variable area is limited, check the word count currently used, and be careful not to exceed the capacity.

Capacity of Variable Area

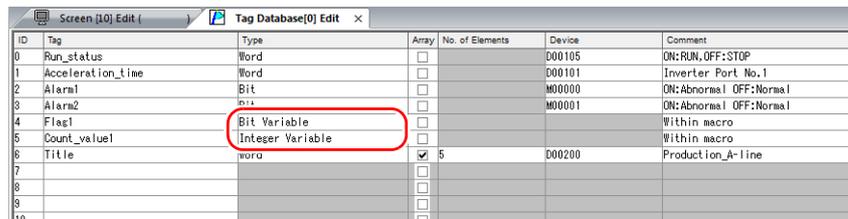


Variable Type	Data Type	Capacity
Bit variable *	1-bit data	4096 word
Integer variable	1-word data	
Double-word integer variable	Double-word data	4096 word
Real number variable	32-bit single precision real number format	

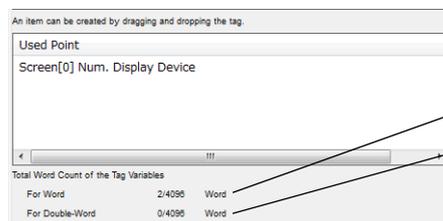
* If the bit variable is specified in array format, 1 word is occupied in the variable area even if “16” or a smaller number is specified for the number of elements.

Checking the Capacity of “Tag” Variable

Check the capacity when the “tag” variables are registered as shown below.



2 words are occupied in the variable area.



Integer variable “1” + bit variable “1”

Two words are used per double-word integer variable
Example: A total of four words are used when two double-word integer variables are registered

For details on status list operations, refer to “10.4 Tag Status List”.

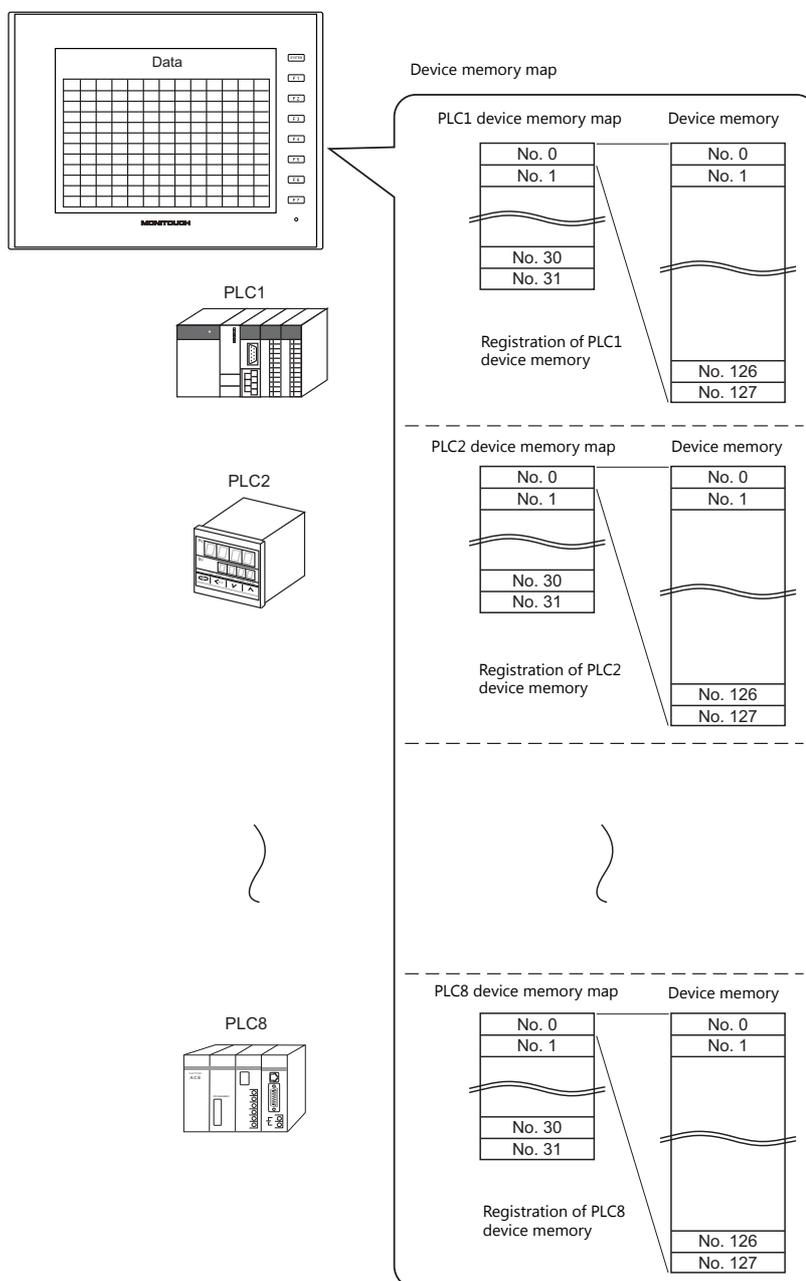


The value is indicated in red when it exceeds the maximum value. If the tag indicated in red is used on the screen, the message “Error: 46” appears and the unit will not run. Set a value smaller than the maximum.

11 Device Memory Map

11.1 Overview

- The V9 series unit contains device memory map numbers 0 to 31 (32 total) with respect to a single logical port. 128 addresses can be registered to a single device memory map and batch transfer of addresses can be performed between each equipment.



- Functions that use device memory maps
 - Periodical reading

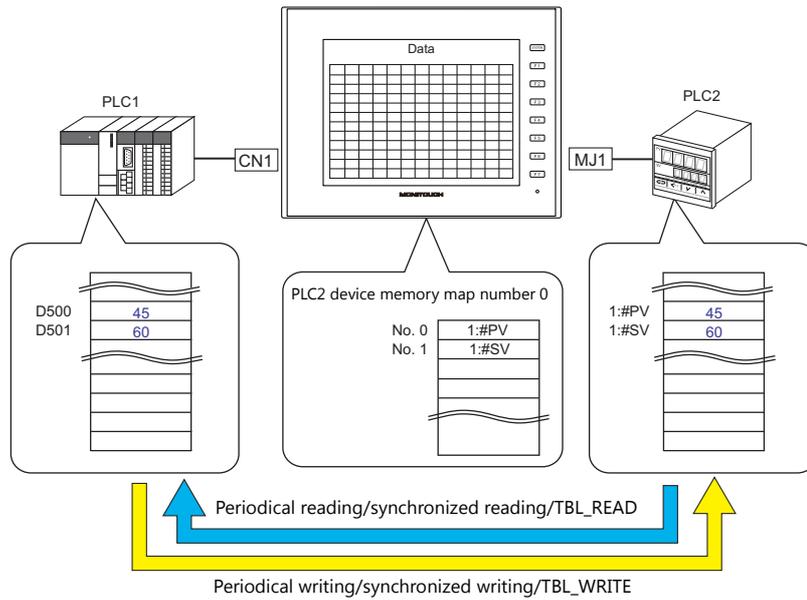
Data in device memory addresses registered on a device memory map is periodically transferred to other equipment. (“11.3 Periodical Reading” page 11-7)
 - Periodical writing

Data in other equipment is periodically transferred to device memory addresses registered on a device memory map. (“11.7 Control Device” page 11-12)
 - Synchronized reading

Data in device memory addresses registered on a device memory map is transferred to other equipment when the relevant bit turns ON. (“11.4 Synchronized Reading” page 11-8)
 - Synchronized writing

Data in other equipment is transferred to device memory addresses registered on a device memory map when the relevant bit turns ON. (“11.6 Synchronized Writing” page 11-11)
 - Macros (TBL_READ, TBL_WRITE)

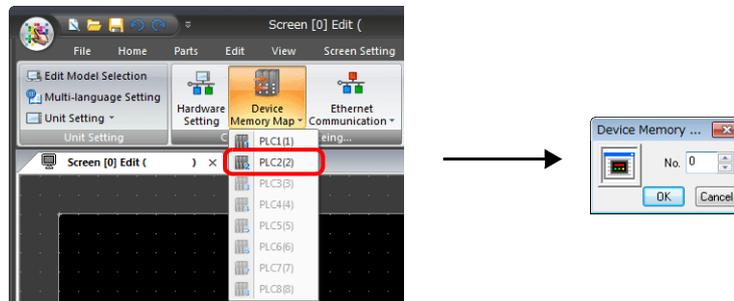
Data in device memory addresses registered on a device memory map is transferred using the “TBL_READ” and “TBL_WRITE” macro commands. (“11.8 TBL_READ/TBL_WRITE” page 11-13)“11.9 System Device Memory” page 11-14



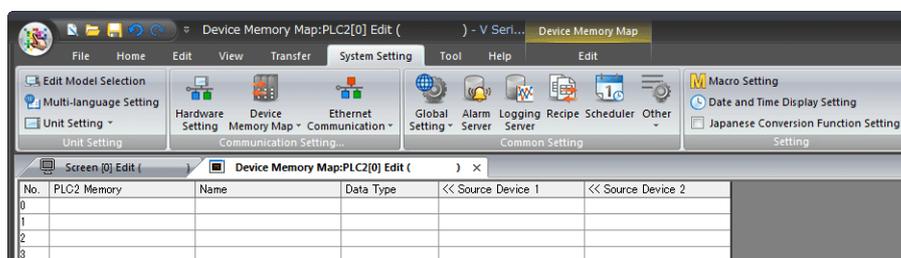
11.2 Editing Device Memory Maps

11.2.1 Starting

1. Click [System Setting] → [Device Memory Map] → [PLCn].
The [Device Memory Map: PLCn] window is displayed.



2. Select a device memory map number and click [OK].
The [Device Memory Map Edit] window is displayed.



A device memory map has numbers 0 to 31 (32 total) with respect to a single logical port and 128 addresses can be registered to each device memory map.

11.2.2 Quitting

Click the close button.



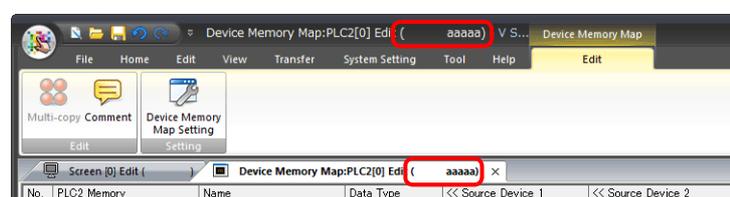
11.2.3 Comment Settings

A comment can be set to each device memory map.

1. With the device memory map displayed, click [Edit] → [Comment]. The [Comment Setting] window is displayed.

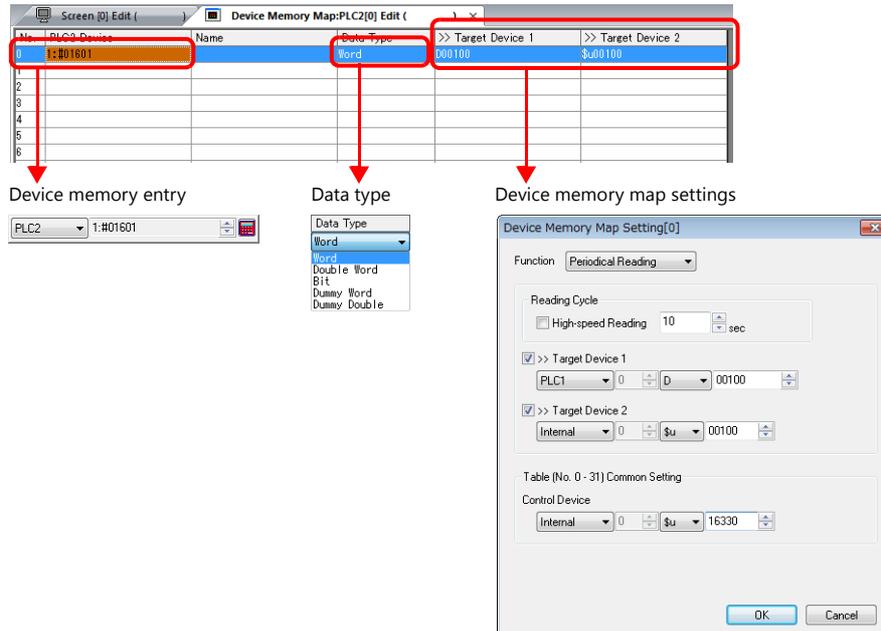


2. Enter a comment and click the [OK] button. The comment is displayed.



11.2.4 Editing the Device Memory Map

Double-click a cell to display the settings window.

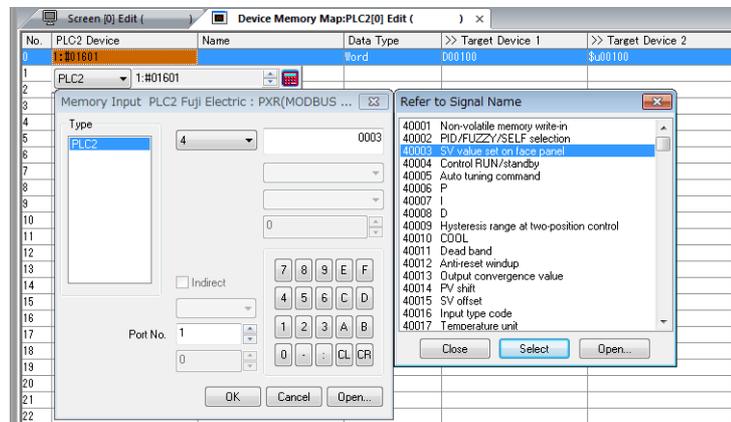


* The [Device Memory Map Setting] window can also be displayed by clicking [Edit] → [Device Memory Map Setting] with the device memory map displayed.

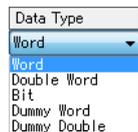
1. Device memory entry

Set the device memory for transfer. If the [Device Memory Map Edit] window for PLC2 is open, register PLC2 device memory.

The following figure shows the list view.



2. Data type



Item	Description
Word	Data is handled as single-word numerical data. Data is transferred based on the [Communication Setting] → [Code] setting of each logical port. ^{*1}
Double Word	Data is handled as two-word numerical data. Data is transferred based on the [Communication Setting] → [Code] setting of each logical port. ^{*1}
Bit	Data is handled as single-word bit information. Data is transferred as is without conversion. ^{*2}
Dummy Word Dummy Double	The transfer source/target device memory addresses are automatically registered with consecutive numbers. If there is an address to be skipped, leaving it not configured (blank) will result in either a dummy word or double word being assigned. When reading: "0" is always stored in the transfer target device memory. Cannot be used for any other purpose. When writing: The transfer source device memory can be used for other purposes.

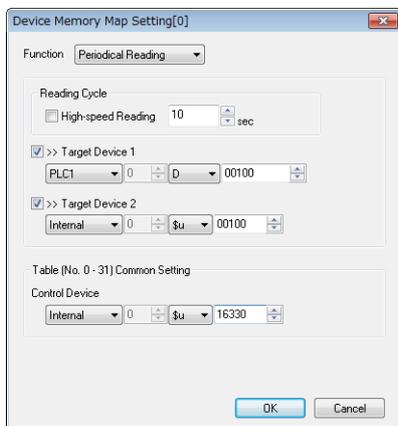
- *1 When Word or Double Word is selected:
 The internal device memory of the V9 series unit are always handled as "DEC (with sign)".

	Code	Bit status																																																																		
Reading ↓	Transfer source PLC	<table border="1"> <tr><th colspan="16">Communication setting BCD</th></tr> <tr><th colspan="16">MSB</th></tr> <tr><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><th>LSB</th></tr> <tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> </table>	Communication setting BCD																MSB																15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	LSB	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
	Communication setting BCD																																																																			
	MSB																																																																			
	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	LSB																																																			
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0																																																				
V9 internal device memory	DEC	<table border="1"> <tr><th colspan="16">MSB</th></tr> <tr><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><th>LSB</th></tr> <tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>0</td></tr> </table>	MSB																15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	LSB	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0																
MSB																																																																				
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	LSB																																																				
0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0																																																				
Transfer target PLCm	Communication setting DEC	<table border="1"> <tr><th colspan="16">MSB</th></tr> <tr><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><th>LSB</th></tr> <tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>0</td></tr> </table>	MSB																15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	LSB	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0																
	MSB																																																																			
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	LSB																																																				
0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0																																																				
Communication setting BCD	<table border="1"> <tr><th colspan="16">MSB</th></tr> <tr><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><th>LSB</th></tr> <tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> </table>	MSB																15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	LSB	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0																	
MSB																																																																				
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	LSB																																																				
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0																																																				

- *2 When Bit is selected:

	Code	Bit status																																																																		
Reading ↓	Transfer source PLC	<table border="1"> <tr><th colspan="16">Communication setting BCD</th></tr> <tr><th colspan="16">MSB</th></tr> <tr><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><th>LSB</th></tr> <tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> </table>	Communication setting BCD																MSB																15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	LSB	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
	Communication setting BCD																																																																			
	MSB																																																																			
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	LSB																																																				
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0																																																				
V9 internal device memory	DEC	<table border="1"> <tr><th colspan="16">MSB</th></tr> <tr><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td><th>LSB</th></tr> <tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> </table>	MSB																15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	LSB	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0																
MSB																																																																				
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	LSB																																																				
0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0																																																				
Transfer target PLCm	Communication setting DEC BCD																																																																			

3. Device memory map settings
 Set the purpose of each device memory map.
- TBL_READ/TBL_WRITE → [page 11-13](#)
 - Periodical reading → [page 11-7](#)
 - Synchronized reading → [page 11-8](#)
 - Periodical writing → [page 11-10](#)
 - Synchronized writing → [page 11-11](#)



11.2.5 Permitting Interruption

Interruption can be permitted by right-clicking on the relevant device memory map number and selecting [Enabling Interruption] on the menu.

When interruption is permitted, an asterisk mark (*) is shown next to the device memory map number. Switch output, cycle reading, trend/alarm reading operations can be performed during device memory map processing.

Operation for the following settings

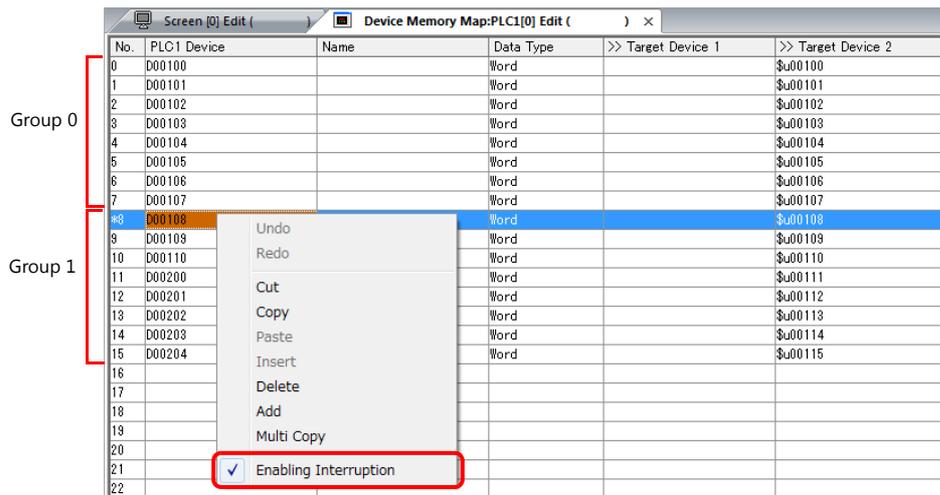
Reading group 0 (numbers 0 to 7)

↓

Switch output, cycle reading, trend/alarm reading

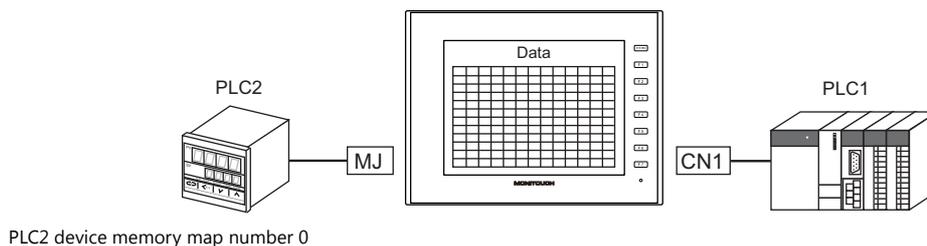
↓

Reading group 1 (numbers 8 to 15)



11.3 Periodical Reading

Data in a device memory address registered on a device memory map is transferred to the targeted address at the timing set for [Reading Cycle].



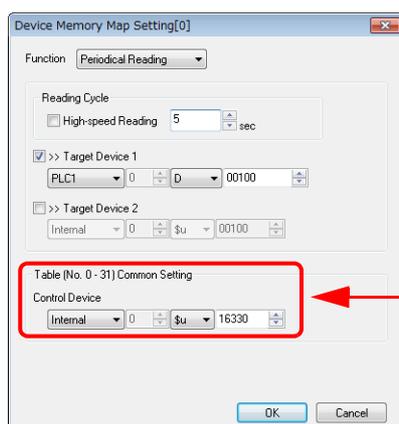
No.	PLC2 Device	Name	Data Type	>> Target Device 1	>> Target Device 2
0	1: #31001	Process value (PV)	Word	D00100	
1	1: #41003	SV value controlled on face panel	Word	D00101	
2					
3					
4					
5					

Transferred at 5 second intervals

Settings

Settings required for periodical reading

- "Editing Device Memory Maps" (page 11-3)
- "Device Memory Map Settings"

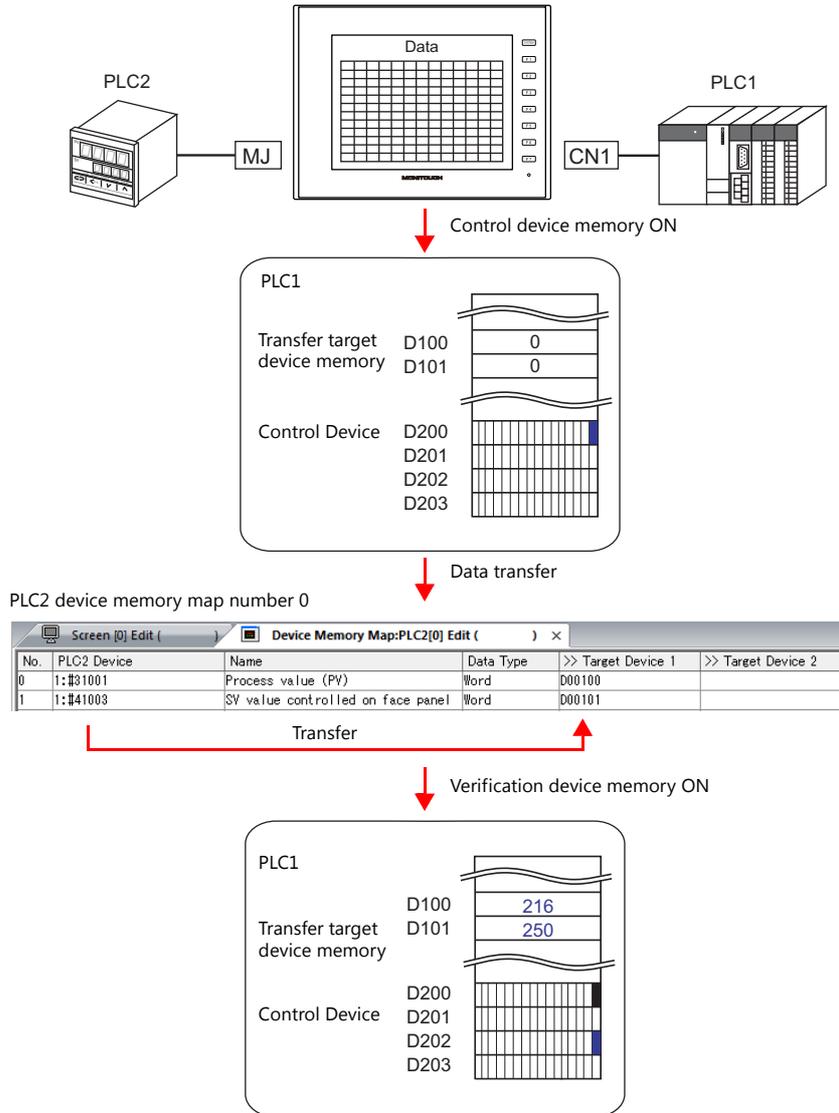


Disabled when [Periodical Reading] is selected

Item	Description											
Function	Periodical reading											
Reading Cycle	Set the cycle for periodical data reading. <table border="1" style="margin-left: 20px;"> <thead> <tr> <th rowspan="2">[High-speed Reading] checkbox</th> <th colspan="2">Reading Cycle</th> </tr> <tr> <th>Setting Range</th> <th>Unit</th> </tr> </thead> <tbody> <tr> <td>Unselected</td> <td>1 - 3600</td> <td>1s</td> </tr> <tr> <td>Selected</td> <td>1 - 3600</td> <td>100ms</td> </tr> </tbody> </table>	[High-speed Reading] checkbox	Reading Cycle		Setting Range	Unit	Unselected	1 - 3600	1s	Selected	1 - 3600	100ms
[High-speed Reading] checkbox	Reading Cycle											
	Setting Range	Unit										
Unselected	1 - 3600	1s										
Selected	1 - 3600	100ms										
Target Device 1 Target Device 2	Set the device memory address for storing the read data.											
Control Device	Disabled when [Periodical Reading] is selected.											

11.4 Synchronized Reading

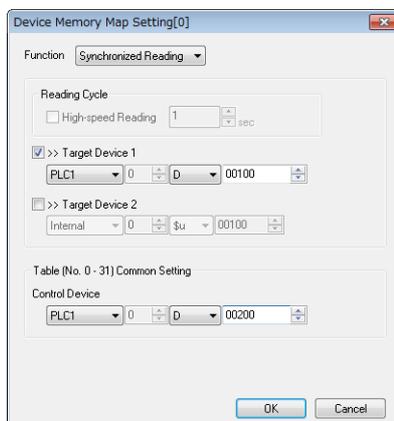
Data in a device memory address registered on a device memory map is transferred to the targeted address when the relevant bit changes from 0 to 1.



Settings

Settings required for synchronized reading

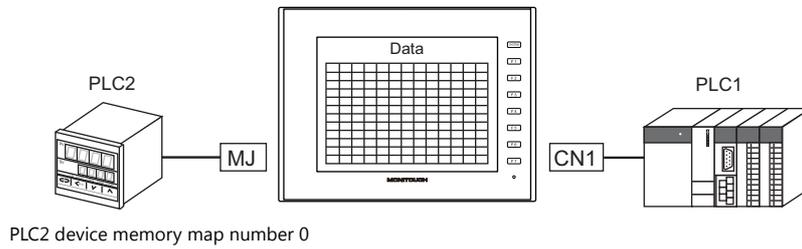
- "Editing Device Memory Maps" (page 11-3)
- "Device Memory Map Settings"



Item	Description
Function	Synchronized reading
Target Device 1 Target Device 2	Set the device memory address for storing the read data.
Control Device	Set the device memory address that serves as the trigger for synchronized reading. Four words are used for an address common to device memory map numbers 0 to 31. For details, refer to "Control Device" page 11-12.

11.5 Periodical Writing

Data in a source device memory address is transferred to the address registered on the device memory map at the timing set for [Writing Cycle].



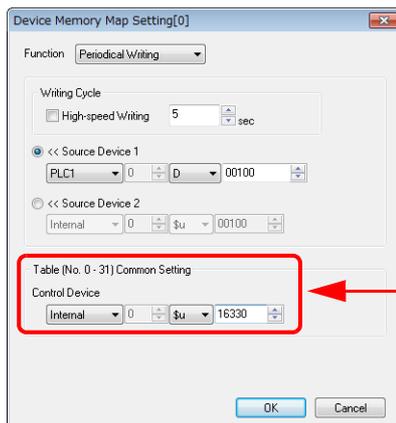
No.	PLC2 Device	Name	Data Type	<< Source Device 1	<< Source Device 2
0	1:41003	SV value controlled on face panel	Word	00100	
1					
2					
3					
4					
5					

Transferred at 5 second intervals

Settings

Settings required for periodical writing

- "Editing Device Memory Maps" (page 11-3)
- "Device Memory Map Settings"

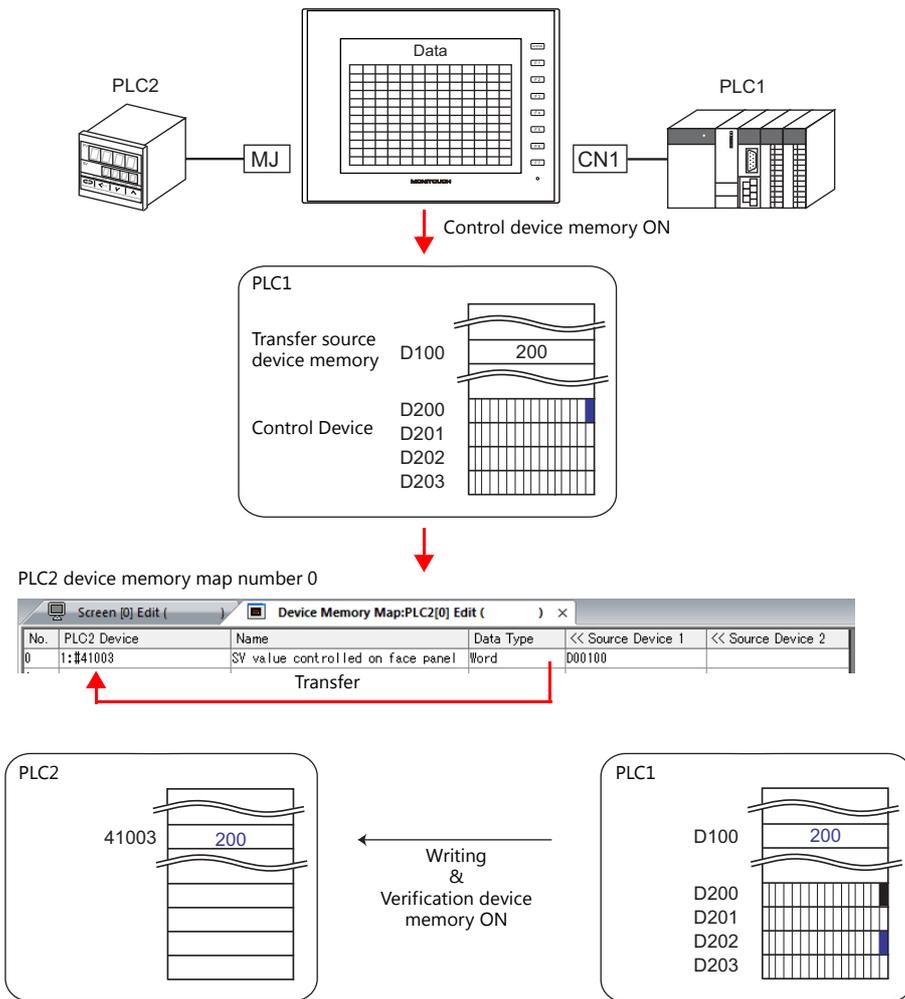


Disabled when [Periodical Writing] is selected

Item	Description											
Function	Periodical writing											
Periodical Writing	Set whether to perform periodical data writing.											
	<table border="1"> <thead> <tr> <th rowspan="2">[High-speed Reading] checkbox</th> <th colspan="2">Reading Cycle</th> </tr> <tr> <th>Setting Range</th> <th>Unit</th> </tr> </thead> <tbody> <tr> <td>Unselected</td> <td>1 - 3600</td> <td>1s</td> </tr> <tr> <td>Selected</td> <td>1 - 3600</td> <td>100ms</td> </tr> </tbody> </table>	[High-speed Reading] checkbox	Reading Cycle		Setting Range	Unit	Unselected	1 - 3600	1s	Selected	1 - 3600	100ms
	[High-speed Reading] checkbox		Reading Cycle									
Setting Range		Unit										
Unselected	1 - 3600	1s										
Selected	1 - 3600	100ms										
Source Device 1 Source Device 2	Set the device memory address of the source data to transfer.											
Control Device	Disabled when [Periodical Writing] is selected.											

11.6 Synchronized Writing

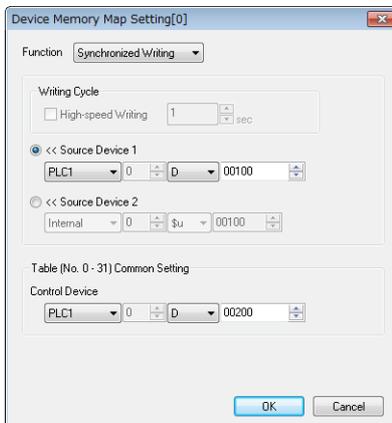
Data in a source device memory address is transferred to the address registered on the device memory map when the control device memory changes from 0 to 1.



Settings

Settings required for synchronized writing

- "Editing Device Memory Maps" (page 11-3)
- "Device Memory Map Settings"



Item	Description
Function	Synchronized writing
Source Device 1 Source Device 2	Set the device memory address for storing data from the transfer source.
Control Device	Set the device memory address that serves as the trigger for synchronized writing. Four words are used for an address common to device memory map numbers 0 to 31. For details, refer to "Control Device" page 11-12.

11.7 Control Device

This type of device memory is used when synchronized reading or synchronized writing is performed.

Four consecutive words are used from control device memory n.

The control device memory can also be changed via [System Setting] → [Hardware Setting] → [PLCn] → [PLC Properties] → [Device Memory Map Control Device].

Control Device	Description	Device Memory Type
n	Command device memory for reading/writing	→ V
n+1		
n+2	Verification device memory for reading/writing	← V
n+3		

Reading/Writing Command Device Memory (Control device memory n, n+1)

One bit is assigned to each device memory map.

Reading and writing for the specified device memory map is executed according to the change in bit status from 0 to 1.

n

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	← Bit number
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	←

Device memory map numbers 0 to 15

n+1

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	← Bit number
31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	←

Device memory map numbers 16 to 31

Reading/Writing Verification Device Memory (Control device memory n+2, n+3)

One bit is assigned to each device memory map.

The turning ON (0 → 1) of the command device memory is recognized, and when the reading/writing finishes, the corresponding bit of the verification device memory turns ON (0 → 1).

Also, when the turning OFF (1 → 0) of the command device memory is recognized, the verification bit of the corresponding device memory map number turns OFF (1 → 0).

n+3

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	← Bit number
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	←

Device memory map numbers 0 to 15

n+4

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	← Bit number
31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	←

Device memory map numbers 16 to 31

- Synchronized reading
Only one address needs to be successfully read among the addresses registered on the device memory map for the verification device memory to turn ON.
If no addresses were successfully read, the verification bit does not turn ON.
- Synchronized writing
Regardless of whether writing succeeds or fails, the verification bit turns ON after writing is finished.

11.8 TBL_READ/TBL_WRITE

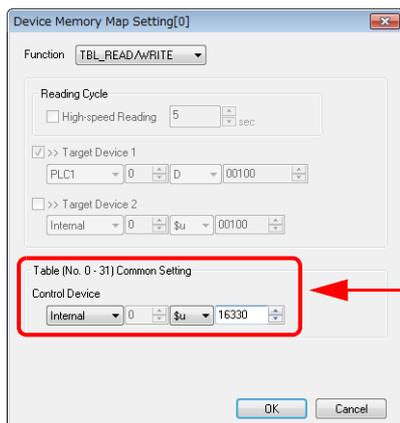
Data in device memory addresses registered on a device memory map is transferred at once using the "TBL_READ" and "TBL_WRITE" macro commands.

Settings

Settings required for device memory map transfer

- "Editing Device Memory Maps" (page 11-3)
- Device memory map settings
- Macros (TBL_READ/TBL_WRITE)

Device Memory Map Settings



Disabled when TBL_READ/TBL_WRITE is selected

Item	Description
Function	TBL_READ/TBL_WRITE * Transfer is possible using a macro even for device memory maps selected for other functions.
Control Device	Disabled when TBL_READ/TBL_WRITE is selected.

Macros

Register a switch ON macro, interval timer etc. For details on macro commands, refer to the V9 Series Macro Reference Manual.

- TBL_READ
Transfers data in device memory addresses registered on a device memory map to device memory of other equipment.
- TBL_WRITE
Transfers data from other equipment to a device memory address registered on a device memory map.

11.9 System Device Memory

This section explains the system device memory addresses of the V9 series that are related to device memory maps.

\$Pn (n=1 - 8)	\$s ^{*1}	Description	Device Type
493	762 (PLC2)	Device memory map reading prohibition flag 0: Periodical reading/synchronized reading executable Other than 0: Periodical reading/synchronized reading stopped	→ V
494	763 (PLC2)	Device memory map TBL_READ/TBL_WRITE macro forced execution Macro operation setting when a port is not communicating 0: Do not execute the macro with respect to all ports Other than 0: Execute the macro with respect to connected ports	
495	764 (PLC2)	Device memory map writing prohibition flag 0: Periodical writing/synchronized writing executable Other than 0: Periodical writing /synchronized writing stopped	

*1 When controlling a device memory map using \$s762, \$s763, or \$s764, set [PLC Properties] → [Detail] → [System memory (\$s) V7 Compatibility] to [Yes] for PLC2. In this case, \$P2:493/494/495 cannot be used.

\$Pn:493, 495

These system device memory addresses can be used to temporarily stop periodical reading/synchronized reading or periodical writing/synchronized writing set in the device memory map.

- | | |
|---|---|
| <p>\$Pn:493</p> <ul style="list-style-type: none"> - 0: Periodical reading/synchronized reading is always executed. - Other than 0: Periodical reading/synchronized reading is stopped. | <p>\$Pn:495</p> <ul style="list-style-type: none"> - 0: Periodical writing/synchronized writing is always executed. - Other than 0: Periodical writing/synchronized writing is stopped. |
|---|---|

• Example: Periodical reading

When PLC2 device memory is accessed by a macro, macro completion is delayed when periodical reading of the device memory map is executed (as shown in figure A). To avoid this, periodical reading can be stopped temporarily using \$P2:493 (as shown in Figure B).

Figure A

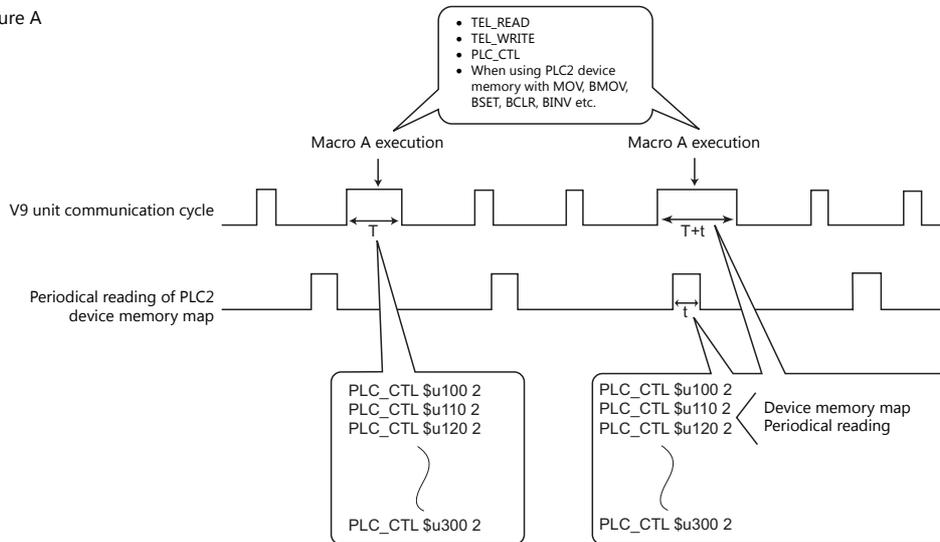
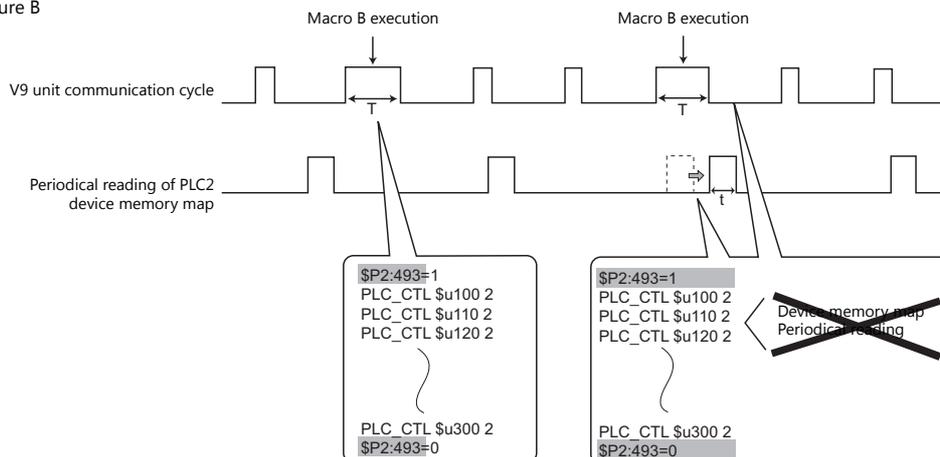


Figure B

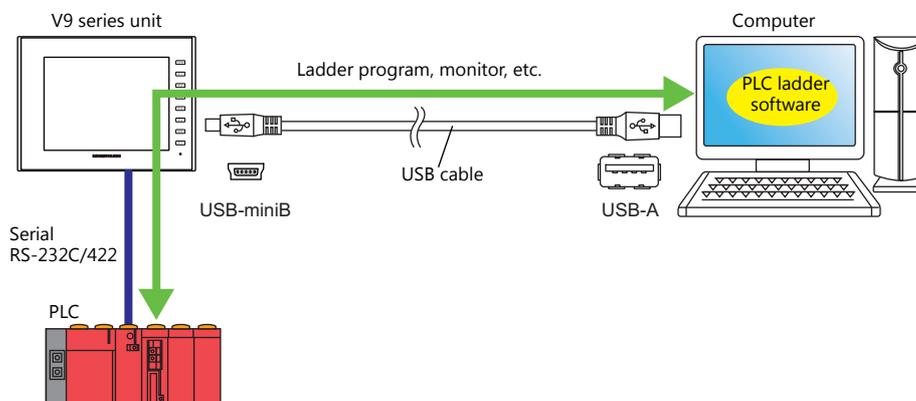


12 Ladder Transfer

12.1 Overview

- PLC ladder programs can be written and monitored via the V9 series unit. There are three methods for connecting the V9 series unit and a computer: by USB connection, Ethernet, and serial connection.

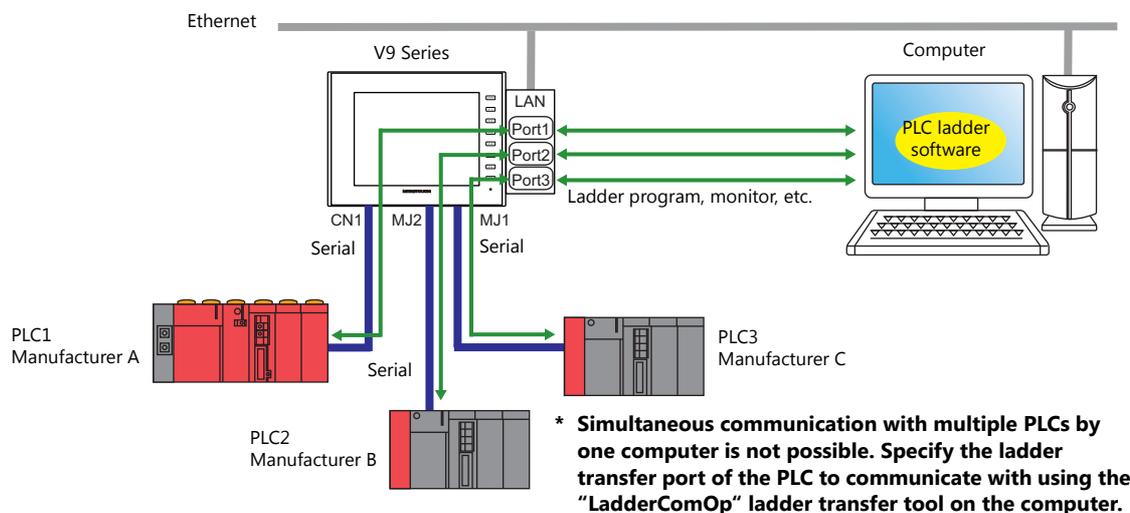
Example: USB connection



For details on the configuration procedure, refer to .

- USB connection: ["12.3 Ladder Transfer via USB" page 12-8](#)
 - Ethernet connection: ["12.4 Ladder Transfer via Ethernet" page 12-13](#)
 - Serial connection: ["12.5 Serial Ladder Transfer" page 12-18](#)
- Of PLCs 1 to 8, ladder communication is possible with the three PLCs connected by serial connection.

Example: Ladder communication with three PLCs using Ethernet ladder transfer function



- The ladder transfer function is only available when [Hardware Setting] → [PLC Properties] → [Communication Mode] is set to [1 : 1] or [Multi-link2] (with local port number set to "1") in the V-SFT. This function cannot be used for 1:n communication (multi-drop) or multi-link communication.
- Simultaneous ladder communication with multiple PLCs by one computer is not possible. Be sure to specify the ladder transfer port of the PLC to communicate with using the "LadderComOp" ladder transfer tool.
- Be sure to use a different ladder transfer port for each PLC.

12.1.1 Operating Environment

Ladder Transfer Ports

USB-B / LAN / LAN2 / MJ1 / MJ2

Supported PC Operating Systems

Windows 2000 / XP / Vista / 7 / 8 / 8.1

Required Applications

Connection Method	Application
USB connection	V-SFT Ver. 6 / LadderComOp Ver. 2
Ethernet connection	
Serial connection	V-SFT Ver. 6

Supported PLC Models



- The ladder transfer function is only available when [Hardware Setting] → [PLC Properties] → [Communication Mode] is set to [1 : 1] or [Multi-link2] (with local port number set to "1") in the V-SFT. This function cannot be used for 1:n communication (multi-drop) or multi-link communication.
- For details on compatible PLC models, refer to the V9 Series Connection Manual.

PLC models that support the ladder transfer function are listed below.

Manufacturer	PLC Name Shown in Editor	Connection CPU/Port	V9 Port		
			MJ1, MJ2	USB B ^{*1}	Built-in LAN
MITSUBISHI ELECTRIC	A series CPU	A2A, A3A A2U, A3U, A4U A2US(H) A1N, A2N, A3N A3V, A73 A3H, A3M A0J2H A1S(H), A1SJ(H) A2S(H) A2CCPUC24 A1FX	○ ^{*2}	○	○
	QnH (Q) series CPU	Q02(H), Q06H	○	○	○
	QnU series CPU	Q00UJ, Q00U, Q01U Q02U, Q03UD, Q04UDH Q06UDH, Q10UDH, Q13UDH Q20UDH, Q26UDH	○	○	○
	Q00J/00/01 CPU	Q00J, Q00, Q01	○	○	○
	QnH (Q) series CPU (Multi CPU)	Q02(H), Q06H	○	○	○
	Q170MCP (Multi CPU)	Q170M	○	○	○
	FX series CPU	FX1/2	×	×	×
		FX0N	○	○	○
	FX2N/1N series CPU	FX2N, FX1N, FX2NC	○	○	○
	FX1S series CPU	FX1S	○	○	○
FX-3U/3UC/3G series CPU	FX-3U, FX-3UC, FX-3G	○	○	○	
OMRON	SYSMAC C	All ports	○	○	○
	SYSMAC CS1/CJ1		○	○	○

Manufacturer	PLC Name Shown in Editor	Connection CPU/Port	V9 Port		
			MJ1, MJ2	USB B *1	Built-in LAN
Panasonic	FP Series (RS232C/422)	FP0 tool port	○	○	○
		FP2 tool port FP2SH tool port	○	○	○
		FPΣ tool port	○	○	○
		FP-e tool port	○	○	○
		FP-X tool port	○	○	○
	FP7 Series (RS232C/422)	All ports	○	○	○
Yokogawa Electric	FA-M3	Tool port on CPU	○	○	○
	FA-M3R		○	○	○
	FA-M3V		○	○	○
Fuji Electric	SPB (N mode) & FLEX-PC CPU	FLEX-PC CPU port	○	○	○
		NJ-B16 RS-232C port	○		
		NW0Pxx CPU port	○		
	MICREX-SX SPH/SPB CPU	NP1Px-xx (SPH)	○	○	○
		NW0Pxx (SPB)	○	○	○
Allen-Bradley	SLC500	SLC5/03 or later, Channel 0	○	○	○
Siemens *1 *3	S7-200PPI	S7-200 PPI port	○*1 *3	○	○*1 *3
	S7-300/400MPI	S7-300/400 MPI port	○*1 *3	×	○*1 *3
SAMSUNG	SENET	N70 COM port (RS-422)	○	○	○
		N70 α COM port			
		N700 COM port (RS-422)			
		N700 α TOOL port			
		N7000 COM port (RS-422)			
		N7000 α COM1			
		NX70 TOOL port			
		NX700 TOOL port			
RS Automation	N7/NX Series (70/700/750/CCU)	N70 COM port (RS-422)	○	○	○
		N70 α COM port			
		N700 COM port (RS-422)			
		N700 α TOOL port			
		N7000 COM port (RS-422)			
		N7000 α COM1			
		NX70 TOOL port			
		NX700 TOOL port			

*1 Ladder communication is only available in RUN mode. Ladder communication cannot be performed in Local mode.

*2 Uses both MJ1 and MJ2 so the dedicated "V6-CP-A" cable is required.

*3 The following messages may be displayed at the top left of the screen on the V9 series unit during access (mainly when transferring a large amount of data, such as programs) to the Siemens S7-200 PPI and S7-300/400 MPI. The V9 series unit automatically returns to normal operation after access is complete.

- PLC1 Access denied by Loader
- PLC1 In Reset Service

12.2 LadderComOp Ver. 2

The "LadderComOp" ladder transfer tool is required when connecting the V9 series unit and PC via USB or Ethernet in order to monitor or write PLC ladder programs.

12.2.1 LadderComOp Installation

Acquiring the LadderComOp Software

- On the V-SFT Ver. 6 CD-ROM, or download the latest update from our website.
- Download "LadderComOp.exe" from our website.

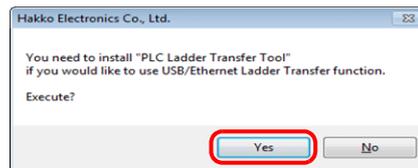
 Our website URL: <http://www.monitouch.com>

Installation

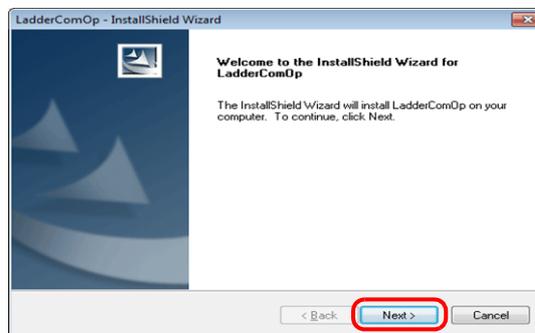
If installing LadderComOp during V-SFT Ver. 6 installation, perform the procedure below from step 1.

If installing LadderComOp after downloading "LadderComOp.exe" from our website, perform the procedure below from step 2.

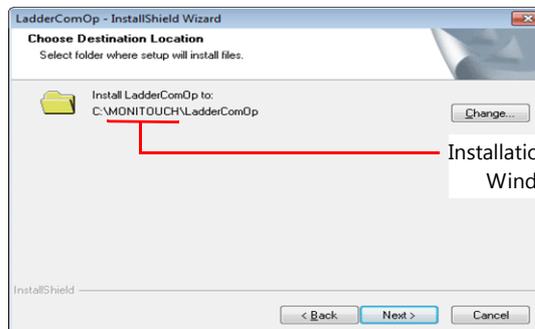
1. After V-SFT Ver. 6 has been installed or updated, the following dialog box is displayed.
Click the [Yes] button.



2. Click the [Next] button.

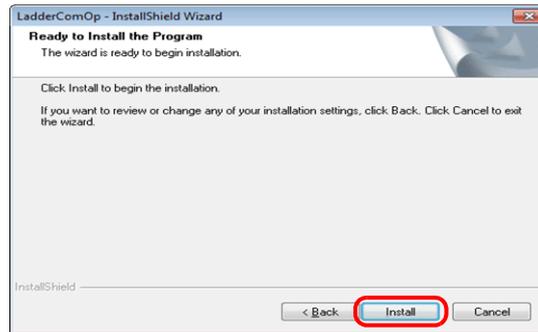


3. Select the location to install the tool and click the [Next] button.

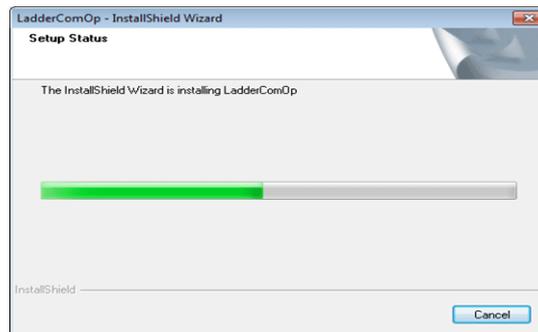


Installation location (default)
Windows Vista/7/8/8.1: MONITOUCH

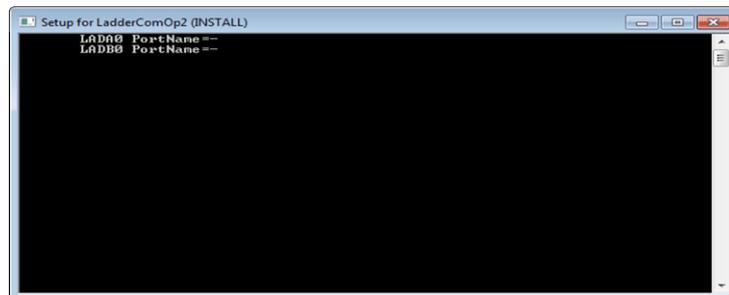
- Click the [Install] button.



- Installation of LadderComOp starts.



The following window is displayed during installation.



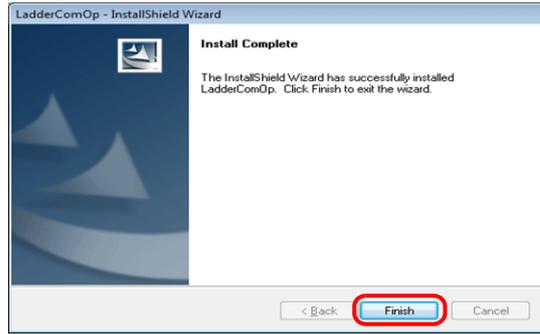
- The following window is displayed. Install the LadderComOp driver. This window is displayed three times so click the [Install] button each time.



- Installation of the driver starts.



8. The following window is displayed when LadderComOp installation is complete. Click the [Finish] button.

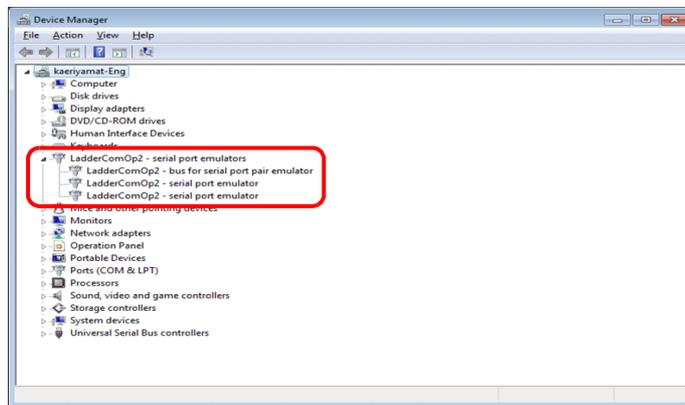


9. The following message is displayed on the PC's task bar when installation is complete.

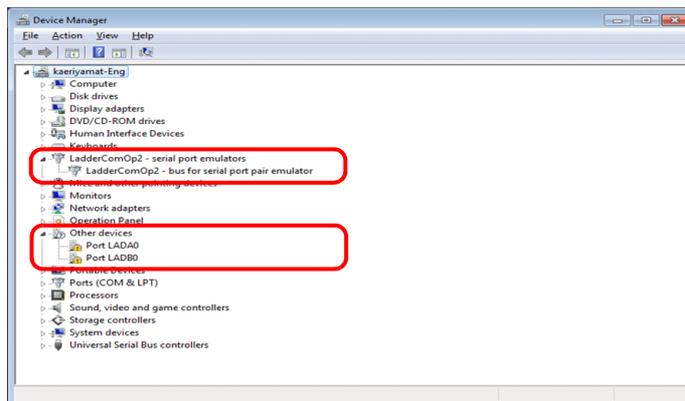


10. Open the Device Manager on the PC.

If installation was successful, "LadderComOp2" is displayed in the Device Manager.

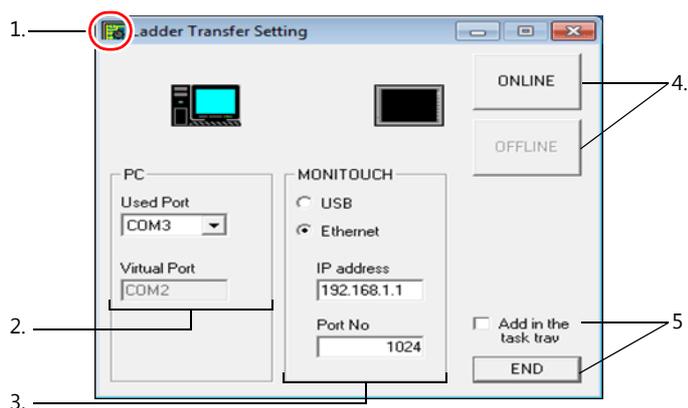


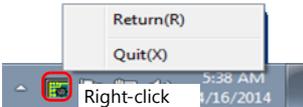
If installation was not successful, a yellow exclamation mark (!) is displayed under [Other devices] in the Device Manager. If this happens, uninstall LadderComOp and then reinstall it.



This completes the installation procedure.

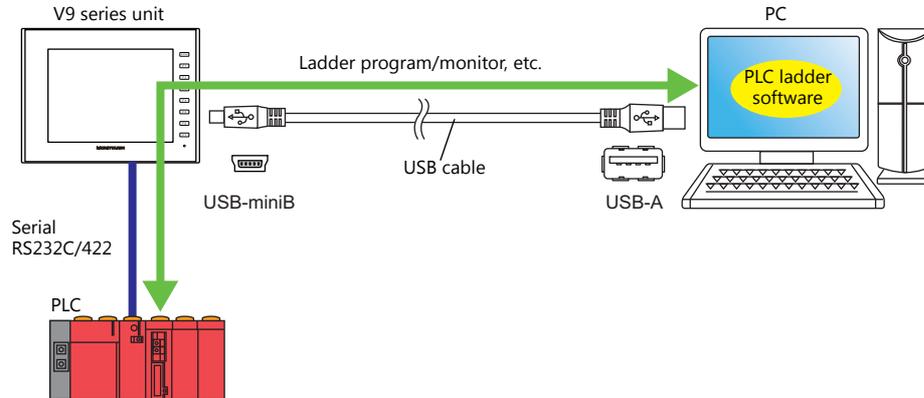
12.2.2 LadderComOp Ver. 2 Detailed Settings



Item	Description
1. Icon	Clicking this icon and selecting [About LadderComOp] opens a window that displays the version of LadderComOp.
2. PC	<p>A total of two COM ports on the PC are used.</p> <ul style="list-style-type: none"> Used Port Select the COM port to use for ladder transfer from the list. Range: COM1 to COM256 (COM port numbers that are already assigned on the PC are not shown in the list.) The COM port number set here needs to be set in each relevant PLC programming software.* * The range of usable COM port numbers depends on the PLC programming software. For details, refer to the relevant PLC manual. Example: Panasonic FPWIN GR, COM1 to 15 (COM1 to 5 for Ver. 2.2 or earlier) Virtual Port An unassigned COM port number is selected automatically.
3. MONITOUCH	<p>Select the connection method to use between the PC and V9 series unit.</p> <ul style="list-style-type: none"> USB No settings are required. Ethernet IP address: Set the local IP address of the V9 series unit (built-in LAN port). Port No: Set the port number of the V9 series unit. Set the same port number as set under [Hardware Setting] → [PLC Properties] → [Ladder Transfer Port]. Range: 1024 to 65533 (default: 1024)
4. ONLINE/OFFLINE	<p>Turn ladder transfer ON or OFF between the PC and V9 series unit.</p> <ul style="list-style-type: none"> ONLINE Establish a connection between the PC and V9 series unit and enable ladder transfer mode. OFFLINE Disconnect the PC and V9 series unit.
5. Hide/END	<ul style="list-style-type: none"> Hide Display an icon in the task tray when a connection is established. LadderComOp is added to the task tray. * The [Add in the task tray] checkbox is automatically selected. <ul style="list-style-type: none"> - The task tray tool tip indicates "Transferring...".  - Right-click on the icon in the task tray to display a menu.  <ul style="list-style-type: none"> Return Display the [Ladder Transfer Setting] window. END Display an icon in the task tray when a connection is not established. Disconnect the PC and V9 series unit and close the [Ladder Transfer Setting] window.

12.3 Ladder Transfer via USB

The V9 series unit and PC can be connected via USB to monitor or write PLC ladder programs through the V9 series unit.



For details on supported PLC models, refer to “Supported PLC Models” page 12-2.



The ladder transfer function is only available when [Hardware Setting] → [PLC Properties] → [Communication Mode] is set to [1 : 1] or [Multi-link2] (with local port number set to “1”) in the V-SFT. This function cannot be used for 1:n communication (multi-drop) or multi-link communication.

12.3.1 Setting Procedure

V-SFT and LadderComOp configuration is required. Refer to the following for the setting procedure.

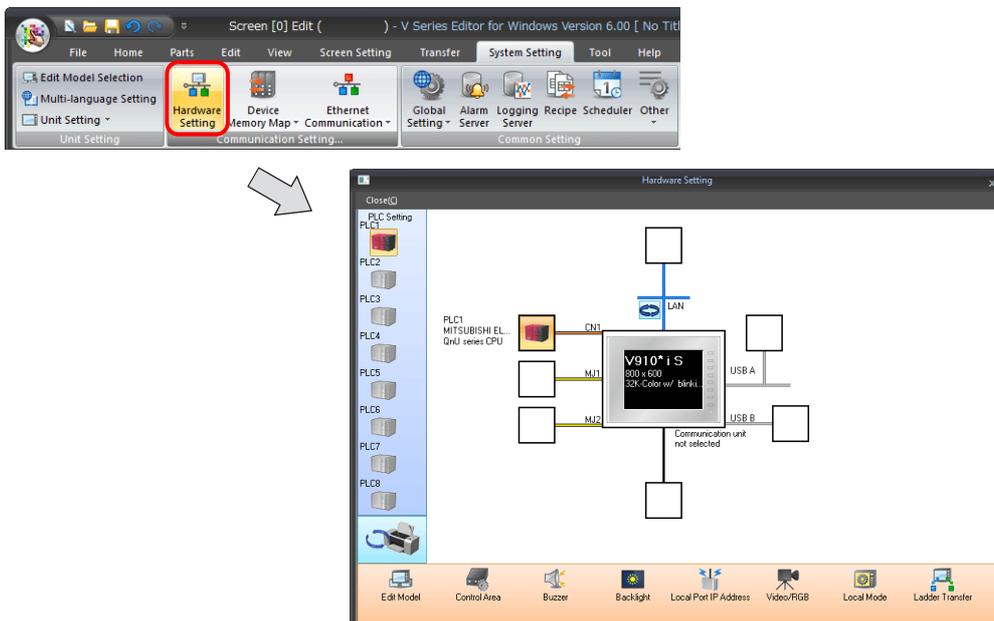
- V-SFT Ver. 6 settings → “V-SFT Ver. 6 Settings” page 12-8
- LadderComOp settings → “LadderComOp Settings” page 12-10
- PLC programming software settings → “PLC Programming Software Settings” page 12-11

V-SFT Ver. 6 Settings

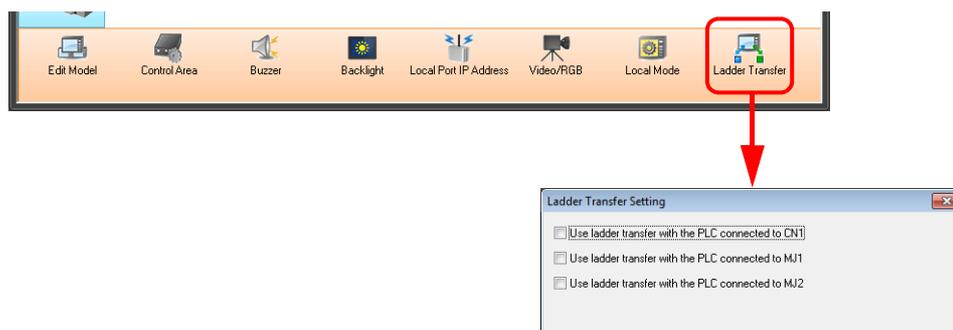
This section describes the settings for ladder transfer using the MITSUBISHI QnU series CPU as an example.

[Ladder Transfer Setting] window

1. Click [Communication Setting] → [Hardware Setting] to display the [Hardware Setting] window.

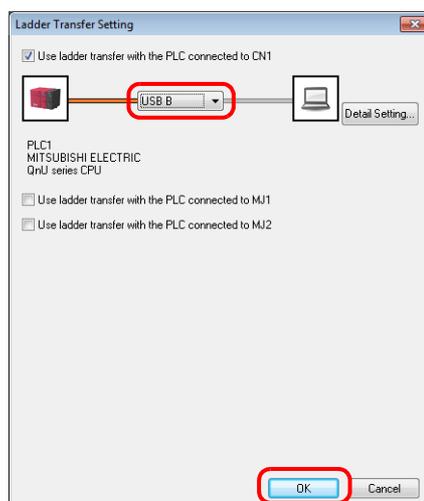


2. Click [Ladder Transfer] to display the [Ladder Transfer Setting] window.



3. Select the port to which the PLC is connected and set the port to which the computer is connected (the ladder transfer port) to [USB B].

* **Be sure to use a different ladder transfer port for each PLC.**



4. Click the [OK] button to complete the necessary settings. Transfer the screen program to the V9 series unit.

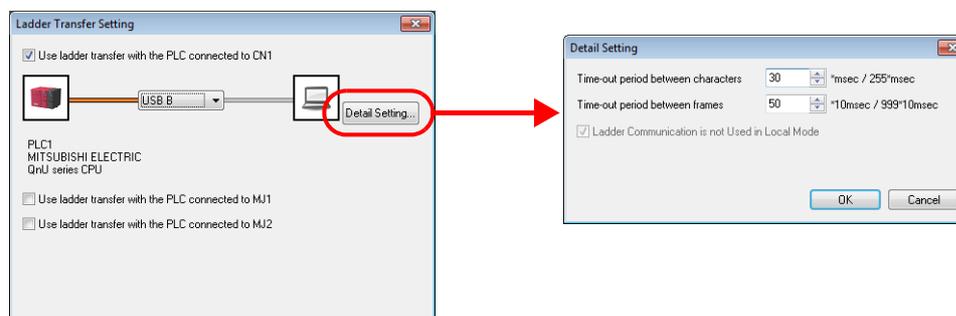


Notes on ladder transfer via USB

Observe the following when transferring screen programs over a USB cable.

- Change the V9 series unit to Local mode.
(Ladder communication is enabled only in RUN mode.)
- Set LadderComOp Ver. 2 to [OFFLINE] mode.
(For details on this setting, refer to "12.2.2 LadderComOp Ver. 2 Detailed Settings" page 12-7.)

Timeout settings for ladder communication can be configured from [Detail Setting].
Configure these settings when communication is unstable.



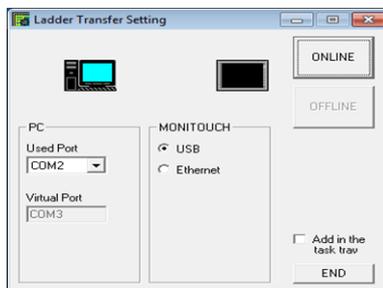
Time-out period between characters	Set the time for checking that data has been transmitted from the ladder tool. Set a time appropriate for the operation environment.
Time-out period between frames	Set the time for monitoring whether a response is received from the PLC after the ladder tool has sent data to the PLC. Set a time appropriate for the operation environment.

LadderComOp Settings

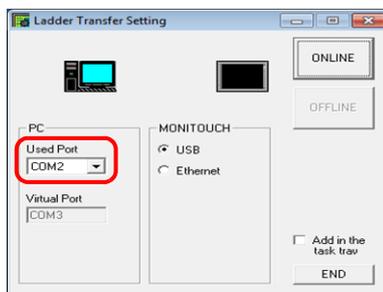
When using the ladder transfer function via USB/Ethernet, the dedicated "LadderComOp" tool must be installed on the PC. For details on the LadderComOp installation procedure, refer to "12.2.1 LadderComOp Installation" page 12-4.

[Ladder Transfer Setting] window

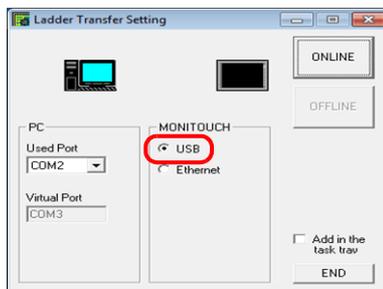
1. From the Windows [Start] menu, click [Programs] → [V-SFT V6] → [LadderComOp] → [Ladder Transfer Setting].
2. The [Ladder Transfer Setting] window is displayed.



3. Select the COM port to use for ladder transfer from the [Used Port] list under [PC].
 - * This port must match the COM port used in the PLC programming software.

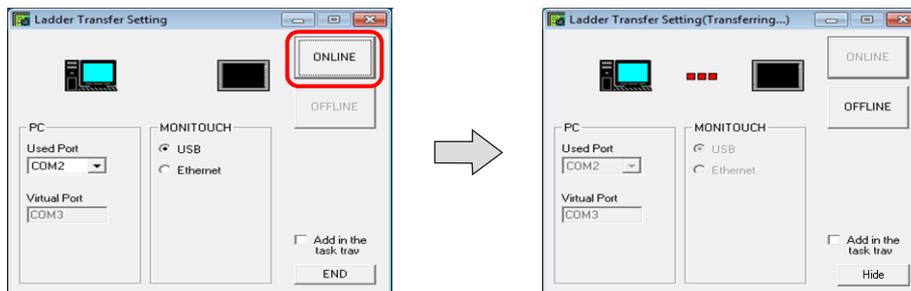


4. Select [USB] under [MONITOUCH].



5. Click the [ONLINE] button.

The display above the ladder transfer settings changes to the connected state.

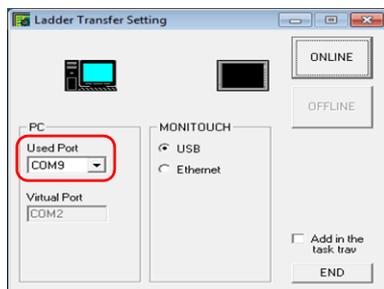


This completes the LadderComOp settings.

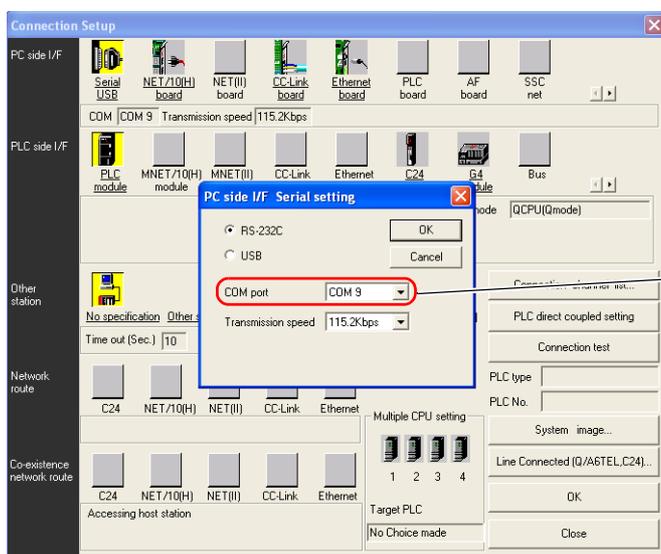
PLC Programming Software Settings

Set the COM port number configured in the [Ladder Transfer Setting] window of LadderComOp to the following window of the relevant PLC programming software to enable access to the PLC.

Example: [Ladder Transfer Setting] window, COM port number 9



MITSUBISHI ELECTRIC GX Developer/GX Works2



For [Transmission speed], specify the same value as the baud rate between the V9 series unit and the PLC.

OMRON CX-Programmer

Be sure to select "SYSMAC WAY" for [Network Type].
[Network Settings] dialog → [Driver] → [Port Name]
For [Baud Rate], specify the same value between the V9 unit and the PLC.

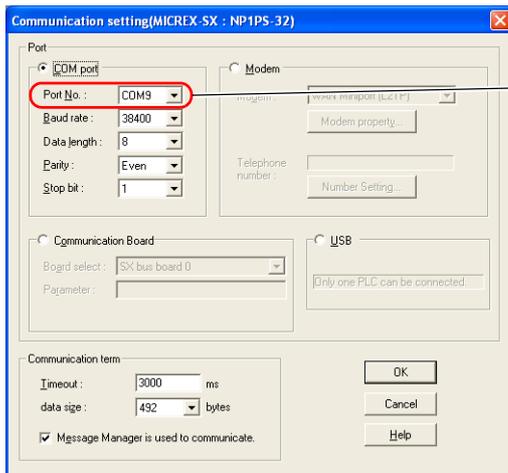
Panasonic "FPWIN GR"

[Communication Settings] dialog → [Port No.]
For [Baud Rate], specify the same value between the V9 unit and the PLC.

Yokogawa Electric "Wide Field2"

[Environmental Settings] dialog → [Communication Settings] → [COM Port No.]

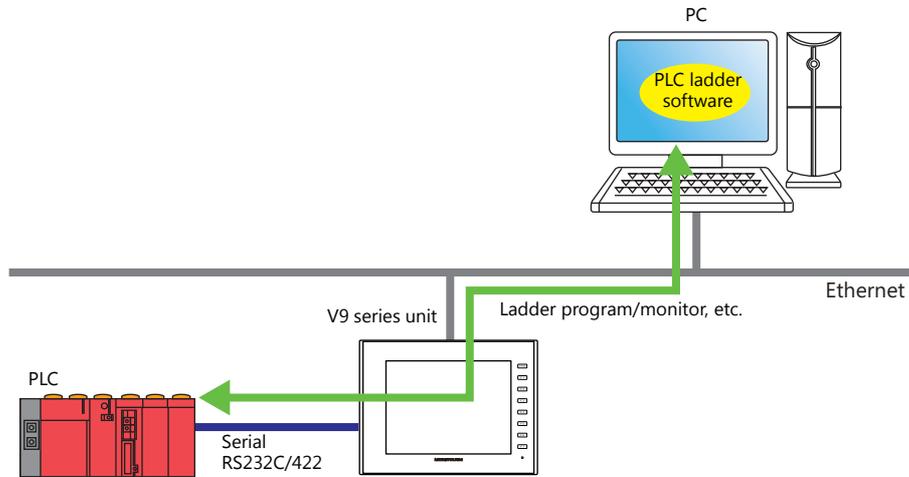
Fuji Electric SX-Programmer Expert (D300win)



For [Baud rate], specify the same value as the baud rate between the V9 series unit and the PLC.

12.4 Ladder Transfer via Ethernet

The V9 series unit and PC can be connected via Ethernet to monitor or write PLC ladder programs through the V9 series unit.



For details on supported PLC models, refer to “Supported PLC Models” page 12-2.



The ladder transfer function is only available when [Hardware Setting] → [PLC Properties] → [Communication Mode] is set to [1 : 1] or [Multi-link2] (with local port number set to “1”) in the V-SFT. This function cannot be used for 1:n communication (multi-drop) or multi-link communication.

12.4.1 Setting Procedure

V-SFT and LadderComOp configuration is required. Refer to the following for the setting procedure.

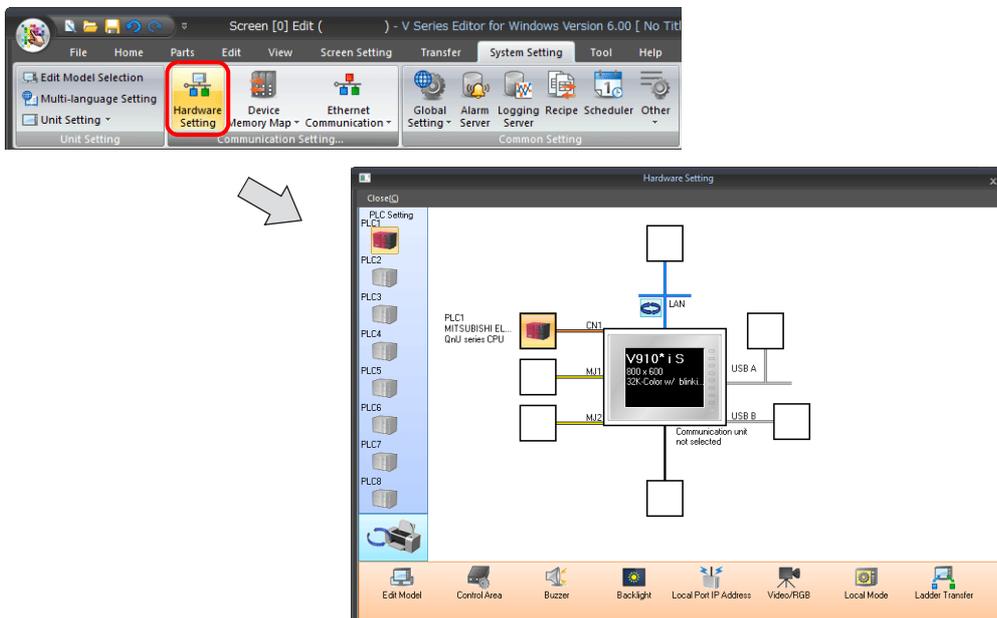
- V-SFT Ver. 6 settings → “V-SFT Ver. 6 Settings” page 12-13
- LadderComOp settings → “LadderComOp Settings” page 12-15
- PLC programming software settings → “PLC Programming Software Settings” page 12-16

V-SFT Ver. 6 Settings

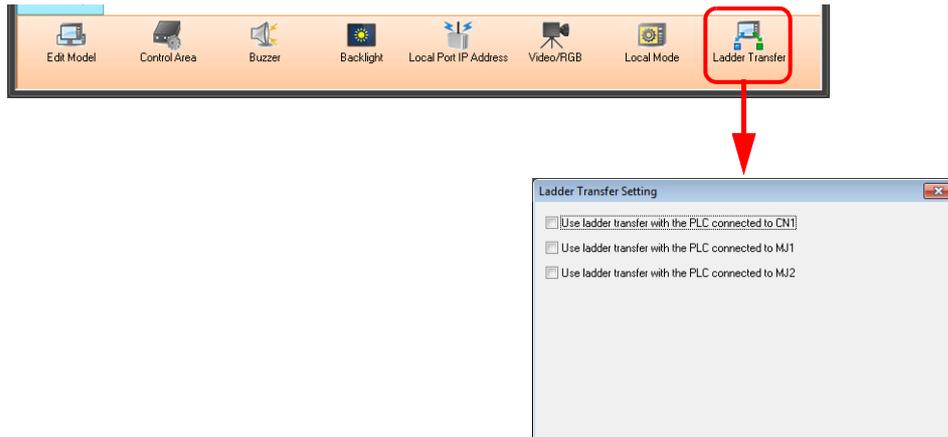
This section describes the settings for ladder transfer using the MITSUBISHI QnU series CPU as an example.

[Ladder Transfer Setting] window

1. Click [Communication Setting] → [Hardware Setting] to display the [Hardware Setting] window.

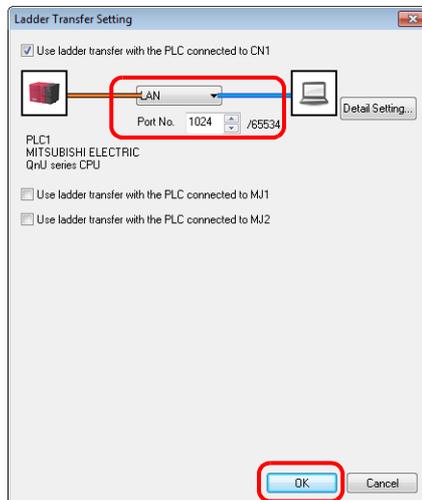


2. Click [Ladder Transfer] to display the [Ladder Transfer Setting] window.



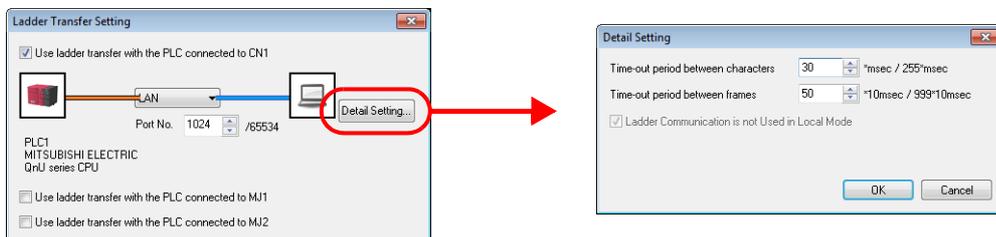
3. Select the port to which the PLC is connected and set the port to which the computer is connected (the ladder transfer port) to [LAN] or [LAN2] and specify the port number.

* **This port is also used in the LadderComOp settings.**
Be sure to use a different ladder transfer port for each PLC.



This completes the necessary settings. Transfer the screen program to the V9 series unit.

Timeout settings for ladder communication can be configured from [Detail Setting]. Configure these settings when communication is unstable.



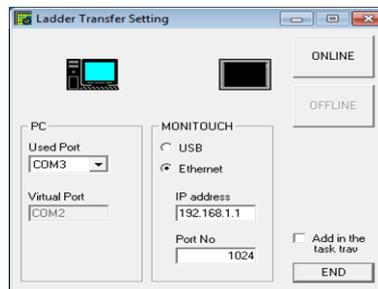
Time-out period between characters	Set the time for checking that data has been transmitted from the ladder tool. Set a time appropriate for the operation environment.
Time-out period between frames	Set the time for monitoring whether a response is received from the PLC after the ladder tool has sent data to the PLC. Set a time appropriate for the operation environment.

LadderComOp Settings

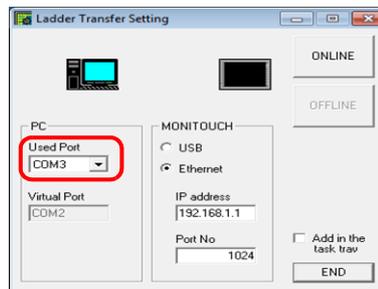
When using the ladder transfer function via USB/Ethernet, the dedicated "LadderComOp" tool must be installed on the PC. For details on the LadderComOp installation procedure, refer to "12.2.1 LadderComOp Installation" page 12-4.

[Ladder Transfer Setting] window

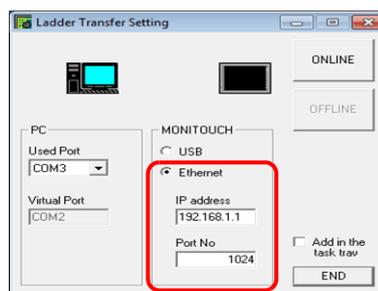
1. From the Windows [Start] menu, click [Programs] → [V-SFT V6] → [LadderComOp] → [Ladder Transfer Setting].
2. The [Ladder Transfer Setting] window is displayed.



3. Select the COM port to use for ladder transfer from the [Used Port] list under [PC].
 - * This port must match the COM port used in the PLC programming software.

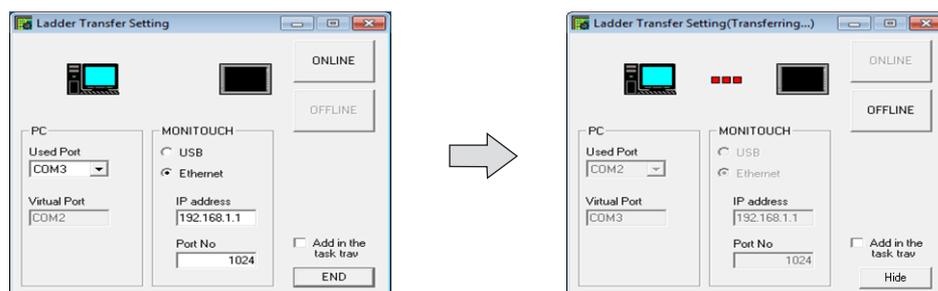


4. Select [Ethernet] under [MONITOUCH] and set the IP address of the V9 series unit and the port number to use in ladder transfer.
 - * The port number must match the ladder transfer port number specified in the [Hardware Setting] window of V-SFT Ver. 6.



5. Click the [ONLINE] button.

The display above the ladder transfer settings changes to the connected state.

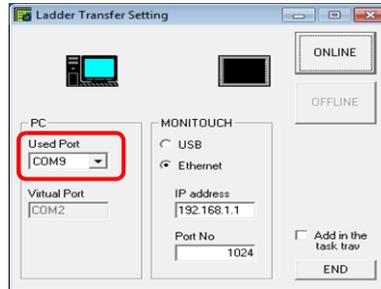


This completes the LadderComOp settings.

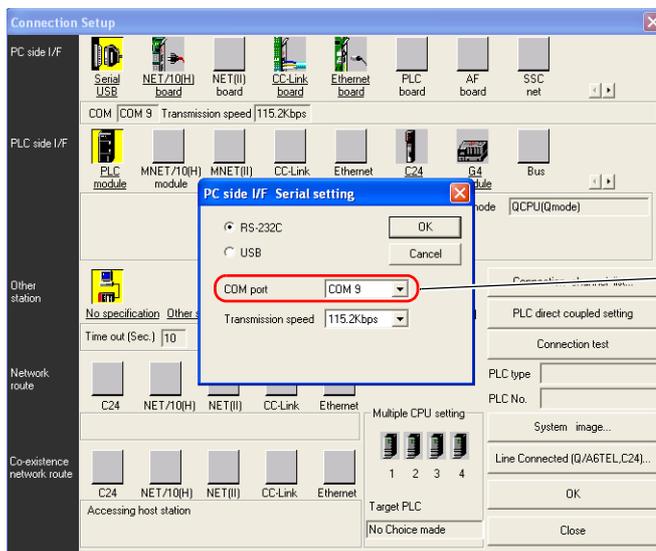
PLC Programming Software Settings

Set the COM port number configured in the [Ladder Transfer Setting] window of LadderComOp to the following window of the relevant PLC programming software to enable communication with the PLC.

Example: [Ladder Transfer Setting] window, COM port number 9



MITSUBISHI ELECTRIC GX Developer/GX Works2



For [Transmission speed], specify the same value as the baud rate between the V9 series unit and the PLC.

OMRON CX-Programmer

Be sure to select "SYSMAC WAY" for [Network Type].

[Network Settings] dialog → [Driver] → [Port Name]

For [Baud Rate], specify the same value between the V9 unit and the PLC.

Panasonic "FPWIN GR"

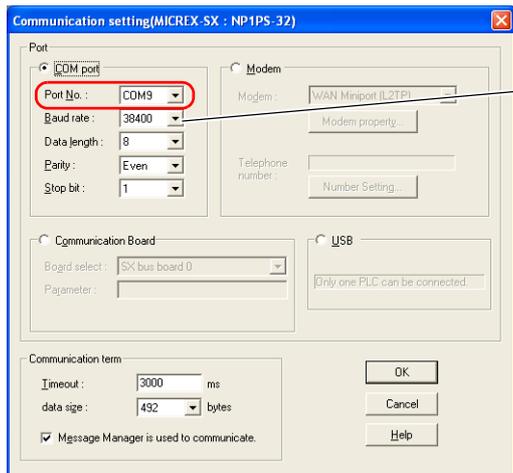
[Communication Settings] dialog → [Port No.]

For [Baud Rate], specify the same value between the V9 unit and the PLC.

Yokogawa Electric "Wide Field2"

[Environmental Settings] dialog → [Communication Settings] → [COM Port No.]

Fuji Electric SX-Programmer Expert (D300win)

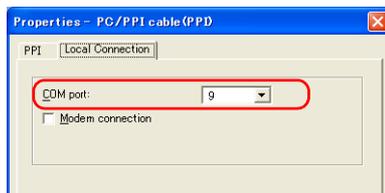


For [Baud rate], specify the same value as the baud rate between the V9 series unit and the PLC.

12

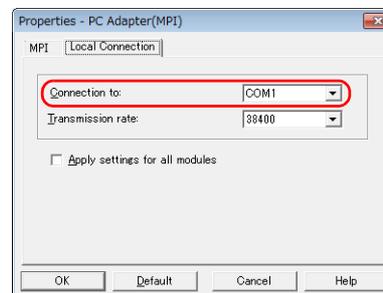
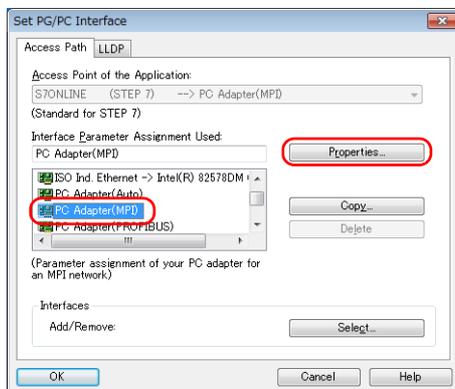
Siemens "STEP 7-Micro/WIN"

[Set PG/PC Interface] dialog → [PC/PPI cable (PPI)] → [Properties].



The baud rate between the V9 unit and the PC is fixed to 115 Kbps.

Siemens SIMATIC Manager

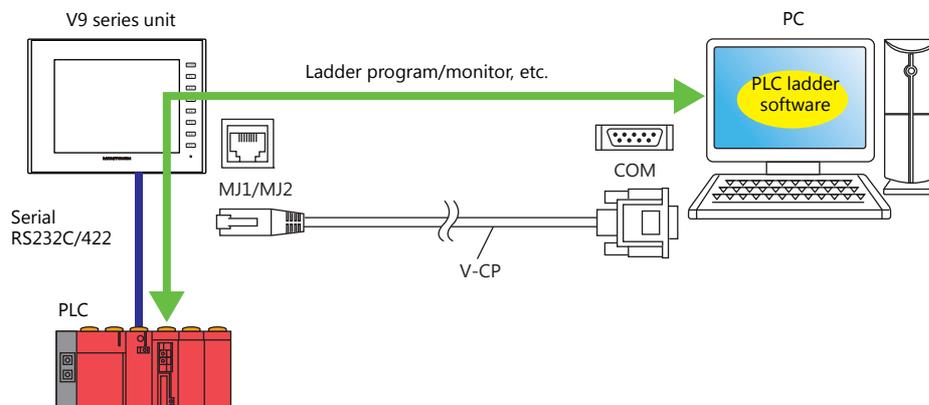


Set [Connection to:] in the range of COM1 to 8.
[Transmission rate:] does not need to be changed.

12.5 Serial Ladder Transfer

The V9 series unit and PC can be connected using a "V-CP" screen program transfer cable to monitor or write PLC ladder programs through the V9 series unit.

* For the MITSUBISHI A series CPU, use Hakko Electronics "V6-CP-A" cable to connect the V9 series unit and PC.



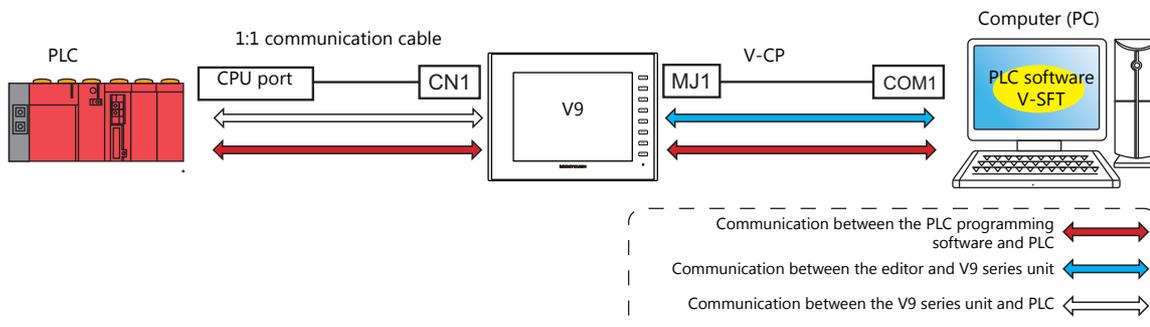
For details on supported PLC models, refer to "Supported PLC Models" page 12-2.



The ladder transfer function is only available when [Hardware Setting] → [PLC Properties] → [Communication Mode] is set to [1 : 1] or [Multi-link2] (with local port number set to "1") in the V-SFT. This function cannot be used for 1:n communication (multi-drop) or multi-link communication.

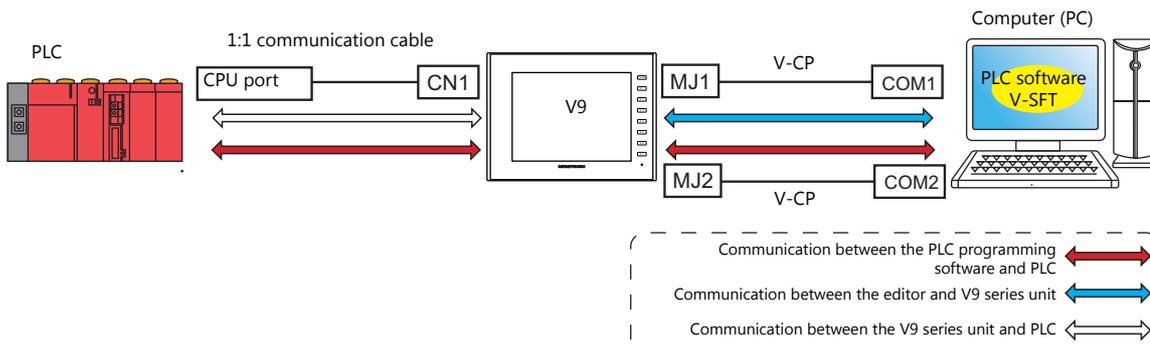
Executing Screen Program Transfer and Ladder Transfer Using the MJ1 Port

Use the MJ1 port when using the ladder transfer function and performing screen program transfer over a single cable. Screen program transfer and PLC programming software transfers cannot be performed at the same time. Communication of either software is cut off in order to perform transfers. Screen program transfer is only possible in Local mode. For details, refer to [Ladder Communication is not Used in Local Mode] settings page 12-21.



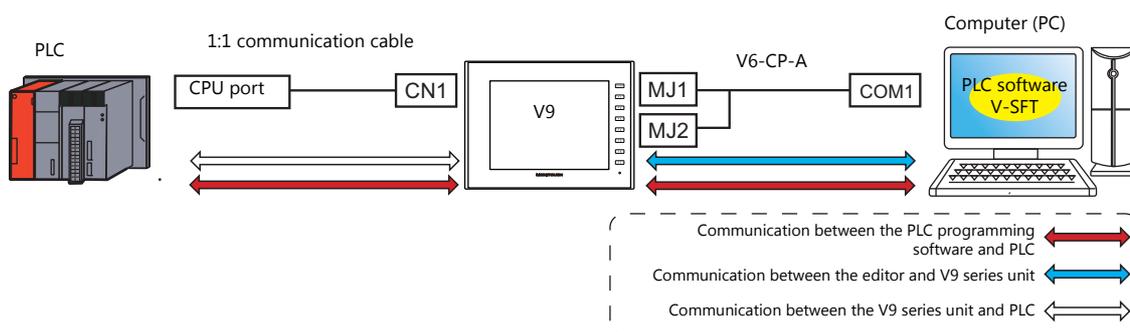
Executing Screen Program Transfer Using the MJ1 Port and Ladder Transfer Using the MJ2 Port

Screen program transfer and PLC programming software transfers can be performed using separate COM ports and cables. Screen program transfer and PLC programming software transfers cannot be performed at the same time.



Communication with the MITSUBISHI ELECTRIC A Series CPU

Use Hakko Electronics "V6-CP-A" cable to connect the V9 series unit and PC.



12

12.5.1 Setting Procedure

V-SFT configuration is required. Refer to the following for the setting procedure.

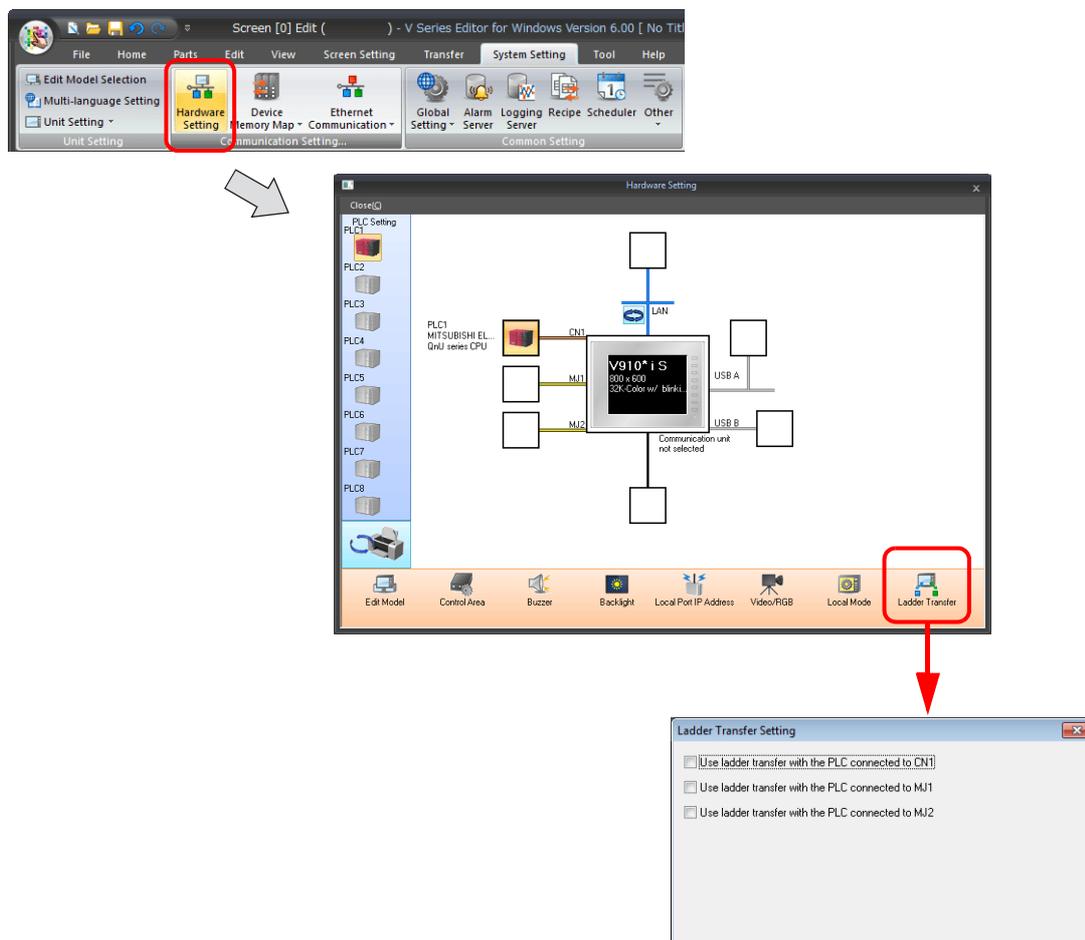
- V-SFT Ver. 6 settings → "V-SFT Ver. 6 Settings" page 12-19
- PLC programming software settings → "PLC Programming Software Settings" page 12-22

V-SFT Ver. 6 Settings

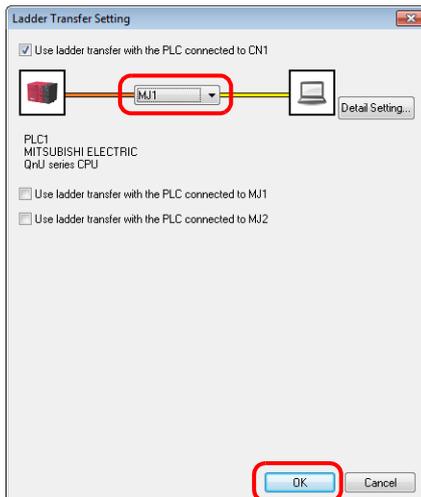
This section describes the settings for ladder transfer using the MITSUBISHI QnH (Q) series CPU as an example.

[Ladder Transfer Setting] window

1. Click [System Setting] → [Hardware Setting] → [Ladder Transfer]. The [Ladder Transfer Setting] window is displayed.

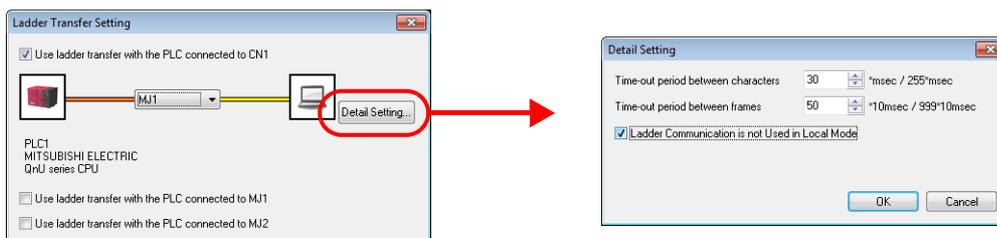


2. Select the port to which the PLC is connected and set the port to which the computer is connected to [MJ1] or [MJ2].



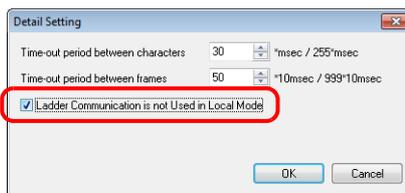
3. Click the [OK] button to complete the necessary settings. Transfer the screen program to the V9 series unit.

Timeout settings for ladder communication can be configured from [Detail Setting].
Configure these settings when communication is unstable.



Time-out period between characters	Set the time for checking that data has been transmitted from the ladder tool. Set a time appropriate for the operation environment.
Time-out period between frames	Set the time for monitoring whether a response is received from the PLC after the ladder tool has sent data to the PLC. Set a time appropriate for the operation environment.

[Ladder Communication is not Used in Local Mode] settings



Whether screen program transfer and ladder transfer can be performed in a particular state of the V9 series unit differs depending on the combination of this setting and the modular jack function.

- MJ1: Ladder transfer

[Ladder Communication is not Used in Local Mode]	V9 Series Unit State	Screen Program Transfer	Ladder Transfer
Selected	RUN	×	○
	Local mode	○	×
Unselected	RUN	×	○
	Local mode	△*	△*

- MJ1: Not connected, MJ2: Ladder transfer

[Ladder Communication is not Used in Local Mode]	V9 Series Unit State	Screen Program Transfer	Ladder Transfer
Selected	RUN	○	○
	Local mode	○	×
Unselected	RUN	○	○
	Local mode	○	○

- MJ1: Not connected/other than ladder transfer, MJ2: Ladder transfer

[Ladder Communication is not Used in Local Mode]	V9 Series Unit State	Screen Program Transfer	Ladder Transfer
Selected	RUN	×	○
	Local mode	○	×
Unselected	RUN	×	○
	Local mode	○	○

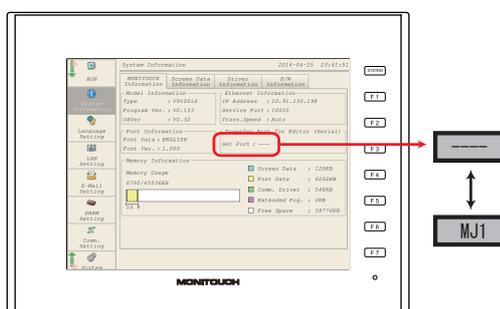
* Switching to Local mode

Press the [SYSTEM] → [Local] switch to display the local mode screen.

The [System Information] → [Editor Transfer Port] → [Set Port] setting is [----] (ladder transfer mode).

In this case, screen program transfer using the MJ1 port cannot be performed.

The [▼] switch can be used to change between [----] and [MJ1].

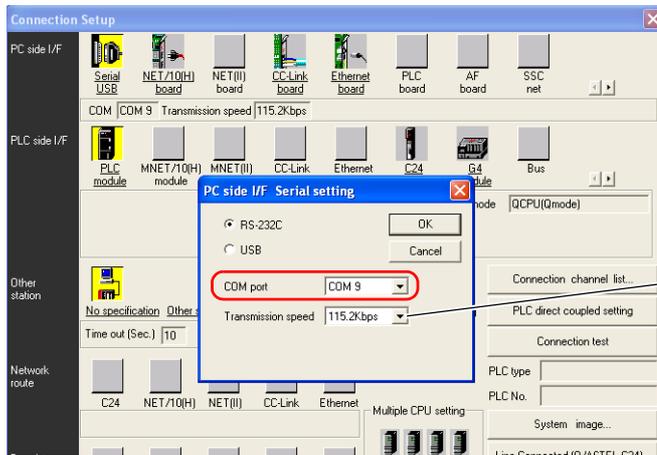


Editor Transfer Port	Screen Program Transfer	Ladder Transfer
----	×	○
MJ1	○	×

PLC Programming Software Settings

Set the COM port number to enable communication with the PLC.

MITSUBISHI ELECTRIC GX Developer/GX Works2



For [Transmission speed], specify the same value as the baud rate between the V9 series unit and the PLC.

OMRON CX-Programmer

Be sure to select "SYSMAC WAY" for [Network Type].
 [Network Settings] dialog → [Driver] → [Port Name]
 For [Baud Rate], specify the same value between the V9 unit and the PLC.

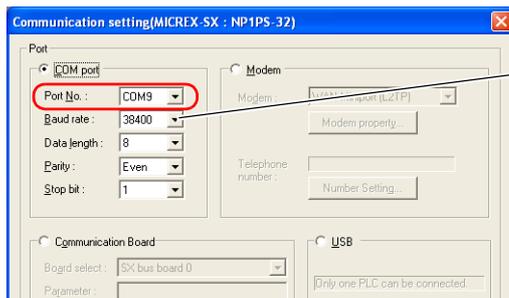
Panasonic "FPWIN GR"

[Communication Settings] dialog → [Port No.]
 For [Baud Rate], specify the same value between the V9 unit and the PLC.

Yokogawa Electric "Wide Field2"

[Environmental Settings] dialog → [Communication Settings] → [COM Port No.]

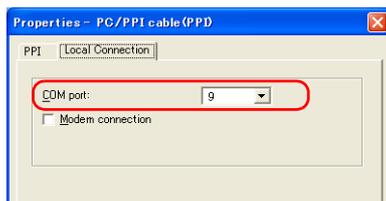
Fuji Electric SX-Programmer Expert (D300win)



For [Baud rate], specify the same value as the baud rate between the V9 series unit and the PLC.

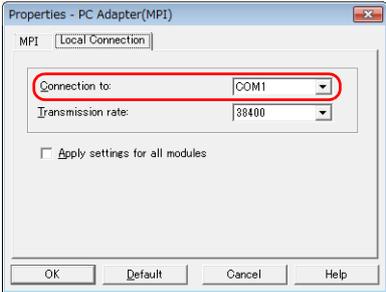
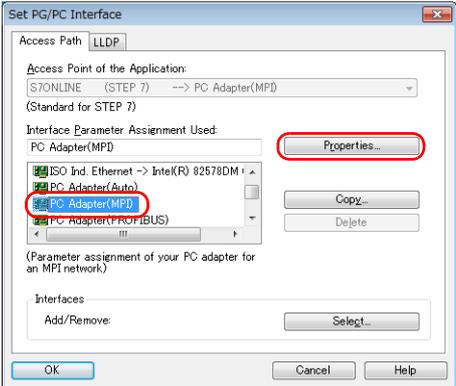
Siemens "STEP 7-Micro/WIN"

[Set PG/PC Interface] dialog → [PC/PPI cable (PPI)] → [Properties].



The baud rate between the V9 unit and the PC is fixed to 115 Kbps.

Siemens SIMATIC Manager



Set [Connection to:] in the range of COM1 to 8.
[Transmission rate:] does not need to be changed.

12.6 Notes

Screen Program Transfer

- When transferring a screen program via USB cable while executing the ladder transfer function via USB, always perform the following.
 - Change the V9 series unit to Local mode.
(Ladder communication is enabled only in RUN mode.)
 - Set LadderComOp Ver. 2 to [OFFLINE] mode.
(For details on this setting, refer to ["12.2.2 LadderComOp Ver. 2 Detailed Settings"](#) page 12-7.)
- When using Siemens S7-200 PPI or S7-300/400 MPI, always change to local mode before transferring the screen program. (Ladder communication is enabled only in RUN mode.)

Other Notes

- The ladder transfer function can be used for up to three ports with PLC 1 to 8.
- When using a PC with user privileges enabled, perform the following in advance.
 - 1) Log in with administrator privileges.
 - 2) Start the LadderComOp program and set a COM port for [Used Port].
 - * When settings are configured initially, LadderComOp may take a few moments to exit.
Also, if a user logs in without administrator privileges, the following message is displayed and the LadderComOP software cannot be used.
- The following messages are displayed at the top left of the screen on the V9 series unit during access (mainly when transferring a large amount of data, such as programs) to the Siemens S7-200 PPI and S7-300/400 MPI. The V9 series unit automatically returns to normal operation after access is complete.
 - PLC1 Access denied by Loader
 - PLC1 In Reset Service
- The communication states of the PLC programming software and PLC when communication is performed between the editor and the V9 series unit are shown below.

Editor	PLC Programming Software
Writing to V9 series unit	Communication stops (normal communication after writing finishes)
Reading from V9 series unit	Normal communication
Checking with V9 series unit	Normal communication

- Baud rate
The baud rate used between the V9 series unit and the PLC is the value set in the editor for [Hardware Setting] → [PLC Properties] → [Baud Rate].
However, when communication (monitoring etc.) with the PLC programming software occurs with the ladder transfer function, the baud rate value changes to that of the PLC programming software. This baud rate is retained until power to the V9 series unit is turned off and on again.
For this reason, set the same baud rate setting for [Hardware Setting] → [PLC Properties] → [Baud Rate] as the PLC programming software.
- When [Use Ladder Tool] is set to [Yes], monitor registration of the V9 series unit and PLC communication is prohibited even if the PLC programming software is not running. This means that the screen display speed is slightly slower than usual.
- When transferring ladder programs when the V9 series unit is in RUN mode, the performance of both the V9 series unit and the PLC programming software decreases because communication between the two is performed in synchronization.

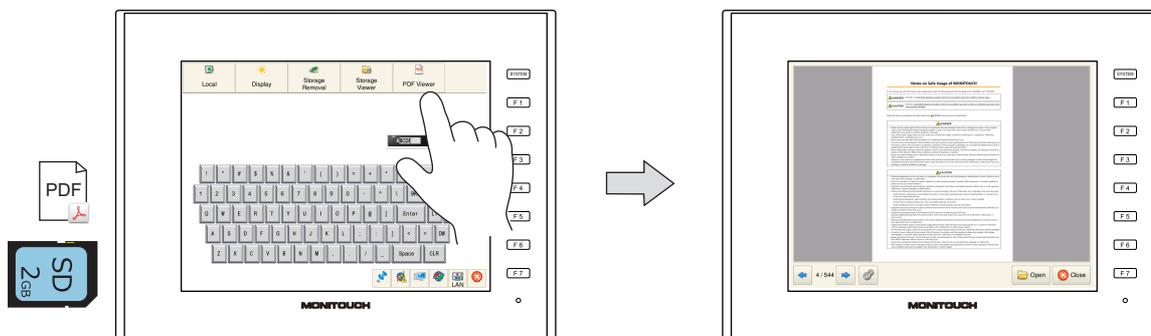
13 PDF Viewer

13.1 Overview

PDF Viewer

- PDF files can be viewed on the V9 series unit without the need for preparing a computer or a paper manual. By saving PDF files of the machine's operation and troubleshooting manuals to a storage device, they can be easily viewed using the dedicated PDF viewer.
- The storage device to refer to can be selected (between the SD card and USB flash drive) from the PDF viewer.
- The PDF viewer can be displayed from either the [PDF Viewer] switch on the system menu or by a command from a PLC.

Example: Displaying from the system menu

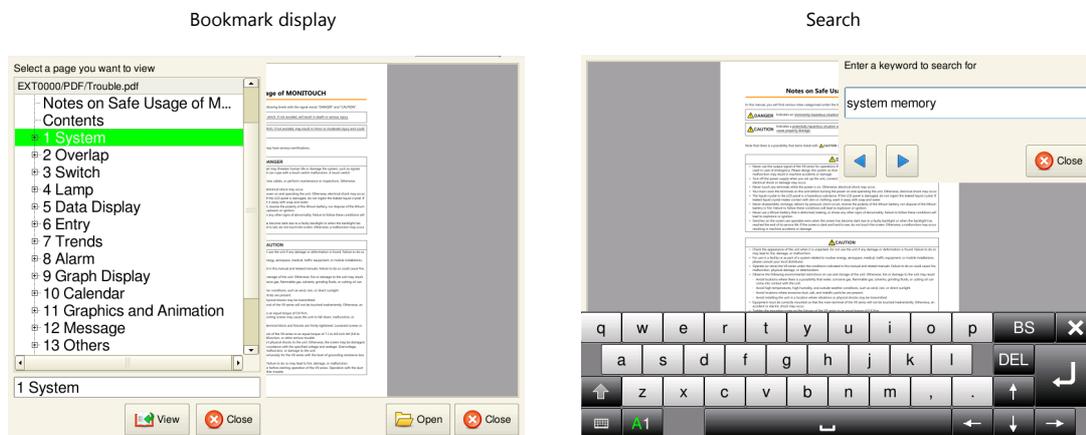


* The PDF viewer can be displayed in both RUN mode and Local mode when using the system menu.

- ☞ For details on the setting method, refer to the following sections.
 - “13.3.1 Displaying from the System Menu” page 13-4
 - “13.3.2 Displaying by Commanding from PLC” page 13-5

Search function

The bookmarks of the PDF file can be displayed and text can be searched for. The display can be enlarged for easy viewing as well.



To search for Japanese text, the [System Setting] → [Japanese Conversion Function Setting] checkbox must be selected.

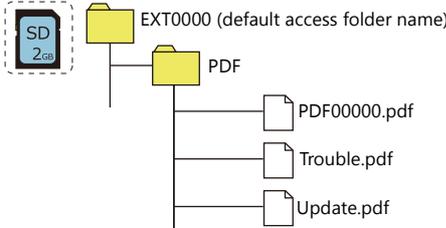
- ☞ For details, refer to “13.5 Operating the PDF Viewer” page 13-7.

13.2 Preparation of PDF Files

This section describes the specifications of PDF files that can be viewed on the PDF viewer and the procedure for saving a PDF file to a storage device.

PDF File Specifications

The specifications are as follows:

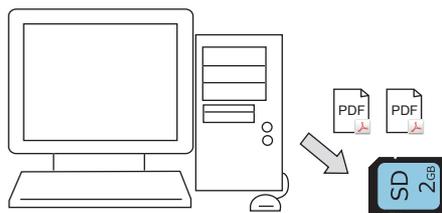
Item	Specifications
File Name	<ul style="list-style-type: none"> PDFxxxx.pdf (xxxx: 00000 to 99999) (For specification by file number) xxxxxx.pdf (64 or less one-byte characters or 32 or less two-byte characters)
File size	No limitation *1
Number of pages	Maximum 65,535 pages in one file
Supported languages	Languages selected at [System Setting] → [Multi-language Setting] → [Transfer Font Setting] tab window. *2
PDF version	1.0 to 1.7
PDF file storage location	Computer C:\MONITOUCH\User\PDF (default) (Storage device) <ul style="list-style-type: none"> When displaying by selecting on the PDF viewer: No settings are required. When displaying by giving a command (control device memory) from a PLC: (output drive)\access folder\PDF 

*1 There is no limitation but larger files will take more time to open.

*2 PDF files created with font information embedded can be displayed regardless of the fonts selected in the [Transfer Font Setting] tab window.

Storing Files on a Storage Device (Storage Manager)

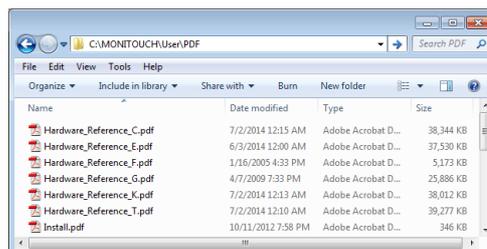
When displaying PDF files by giving a command (control device memory) from a PLC, a PDF file on the PC must be saved to the "PDF" folder in the storage device. This section describes the procedure for saving PDF files to a storage device.



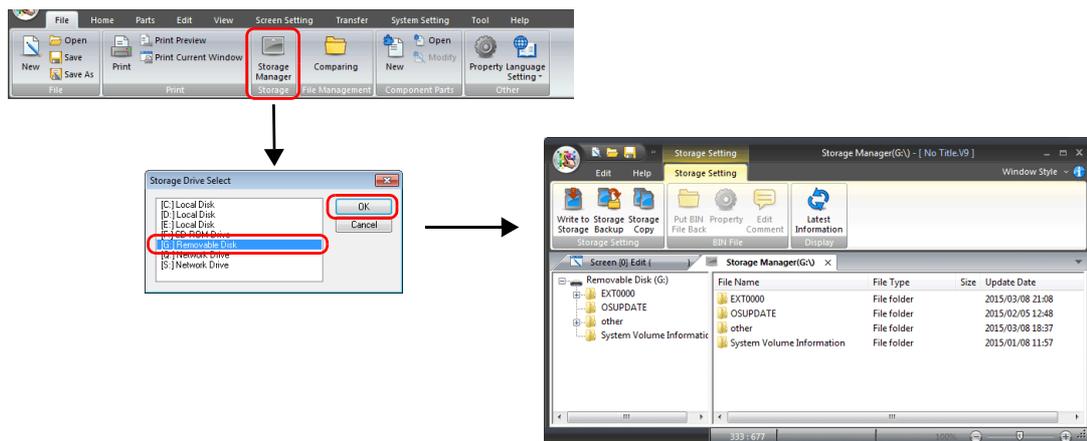
Save PDF files to an SD card. *

* Use the V-SFT storage manager.

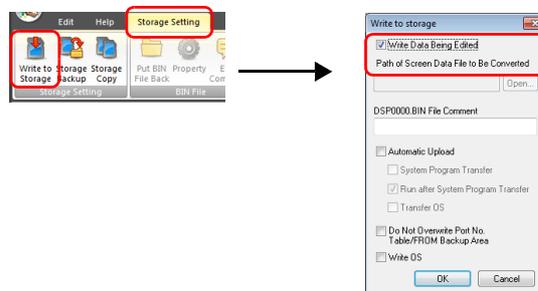
1. Save PDF files to the following location.
C:\MONITOUCH\User\PDF (default)



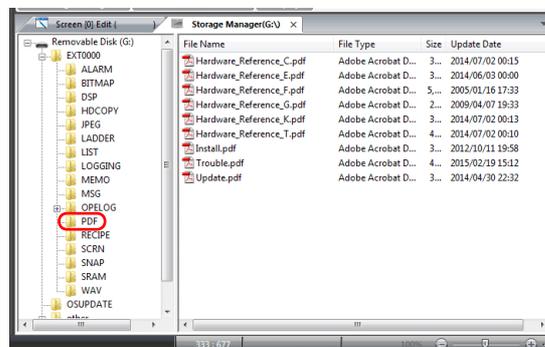
- Click [File] → [Storage Manager] in V-SFT.
Specify the drive where the storage device is inserted and click [OK]. The [Storage Manager] window is displayed.



- On the [Storage Setting] ribbon menu, click [Write to Storage]. On the displayed window, select the relevant screen program.



- When the settings are complete, click [OK]. PDF files are written to the "PDF" folder under the access folder. (output drive)\access folder\PDF



* If there already is a "PDF" folder under the access folder, PDF files can be directly copied into it.

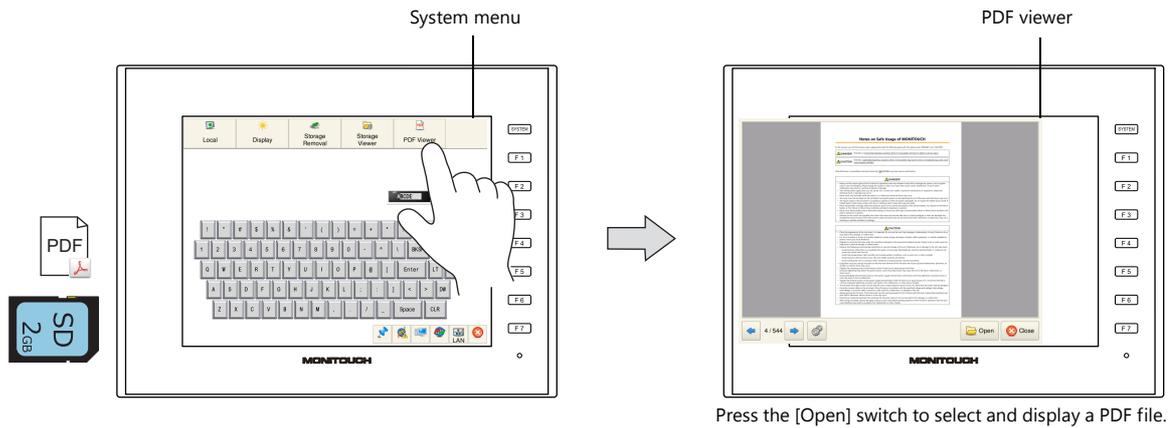
13.3 Setting Example

The PDF viewer can be displayed from either the [PDF Viewer] switch on the system menu or by a command from a PLC.

13.3.1 Displaying from the System Menu

Press the [PDF Viewer] switch on the system menu to display the PDF viewer.

Conceptual Operation

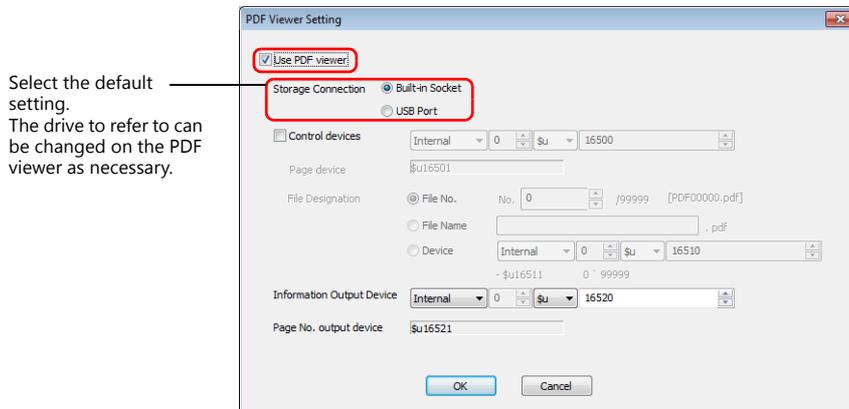


V-SFT Settings (Settings for PDF Viewer)

1. Click [System Setting] → [Other] → [PDF Viewer Setting].



2. In the [PDF Viewer Setting] window, select the [Use PDF viewer] checkbox and select a [Storage Connection].



3. Click [OK]. This completes the configuration of settings.

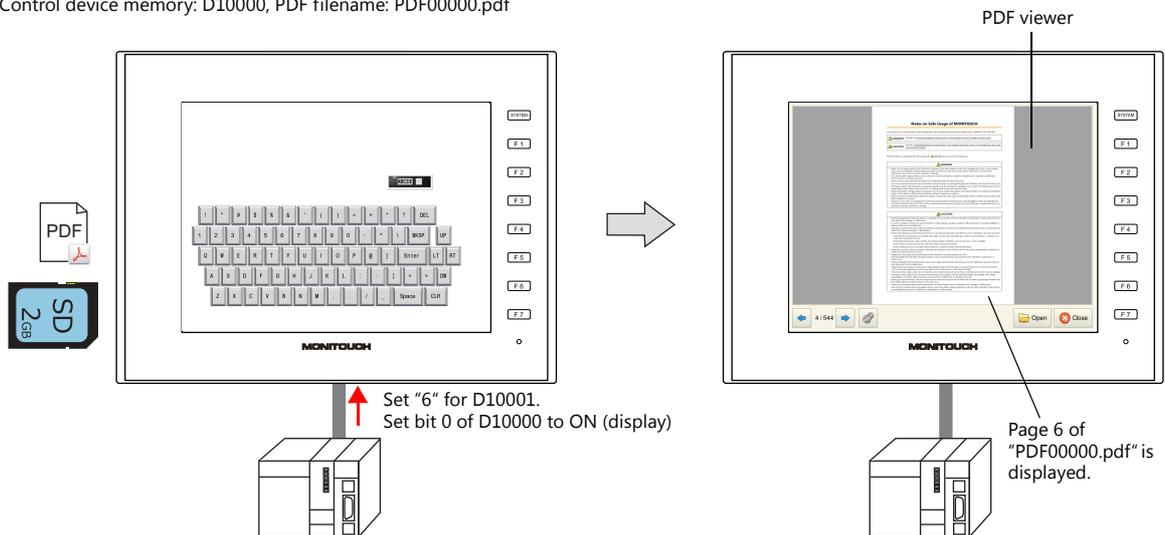
For details on operation on MONITOUCH, refer to “13.5 Operating the PDF Viewer” page 13-7.

13.3.2 Displaying by Commanding from PLC

The PDF viewer can be displayed by turning the relevant PLC device memory bit ON. The page to display can be specified as well.

Conceptual Operation

Control device memory: D10000, PDF filename: PDF00000.pdf

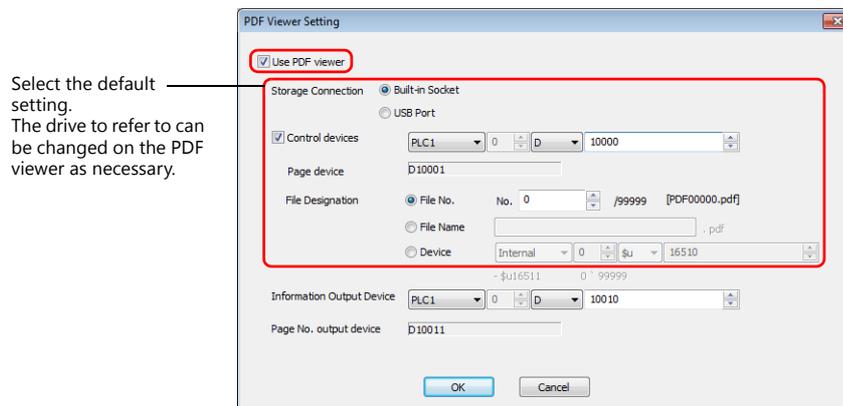


V-SFT Settings (Settings for PDF Viewer)

1. Click [System Setting] → [Other] → [PDF Viewer Setting].



2. In the [PDF Viewer Setting] window, select the [Use PDF viewer] checkbox and make the following settings.



3. Click [OK]. This completes the configuration of settings.

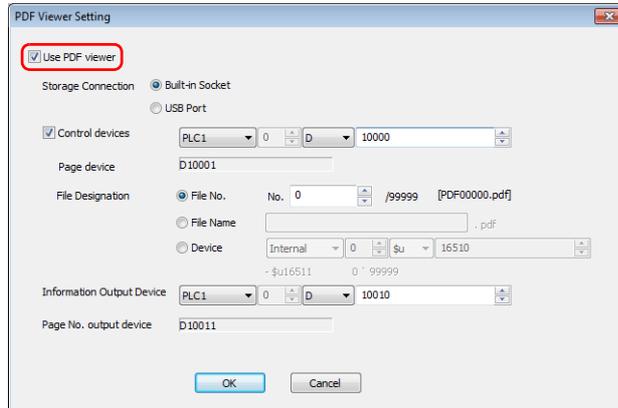
PLC Commands

Set the control device memory D10001 to "6". When bit 0 of D10000 turns ON, page 6 of the "PDF00000.pdf" file is displayed.

For details on operation on MONITOUCH, refer to "13.5 Operating the PDF Viewer" page 13-7.

13.4 Detailed Settings

Select the [Use PDF viewer] checkbox to enable the following items.



Item	Description																																
Storage Connection Target	Select the storage device to refer to for PDF files. This can be changed on the PDF viewer as necessary.																																
Control Device	Showing and hiding is performed according to the value of the least significant bit. ^{*1} <table border="1" style="margin: 10px auto; text-align: center;"> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td> </tr> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td> </tr> </table> <p style="text-align: center;">Reserved for system</p> <p style="text-align: right;">PDF viewer 0: Hide 1: Show</p>	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0																		
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																		
Page device	Specify the page number to display initially. No.: 1 to 65535 ^{*2}																																
File Designation	Specify the filename format for files to specify. [File No.]: 0 to 99999 (Filename: PDF00000.pdf to PDF99999.pdf) [File Name]: Maximum of 64 one-byte uppercase alphanumeric characters, or 32 two-byte characters [Device]: Set the device memory address (2 words) for specifying the file number (No. 0 to 99999)																																
Information Output Device	The state of the PDF viewer is output. <table border="1" style="margin: 10px auto; text-align: center;"> <tr> <td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td> </tr> <tr> <td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td> </tr> </table> <p style="text-align: center;">Reserved for system</p> <p style="text-align: right;">1: Page number does not exist 1: PDF file does not exist PDF viewer status 0: Hide 1: Show</p>	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0																		
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0																		
Page No. output device	The page number that is currently displayed is output. No.: 1 to 65535																																

*1 If the display bit is ON when entering RUN mode, the PDF viewer is displayed.

*2 If a page number that does not exist is specified and the PDF viewer is displayed, the first page of the PDF file is displayed.

13.5 Operating the PDF Viewer

13.5.1 Displaying from the System Menu

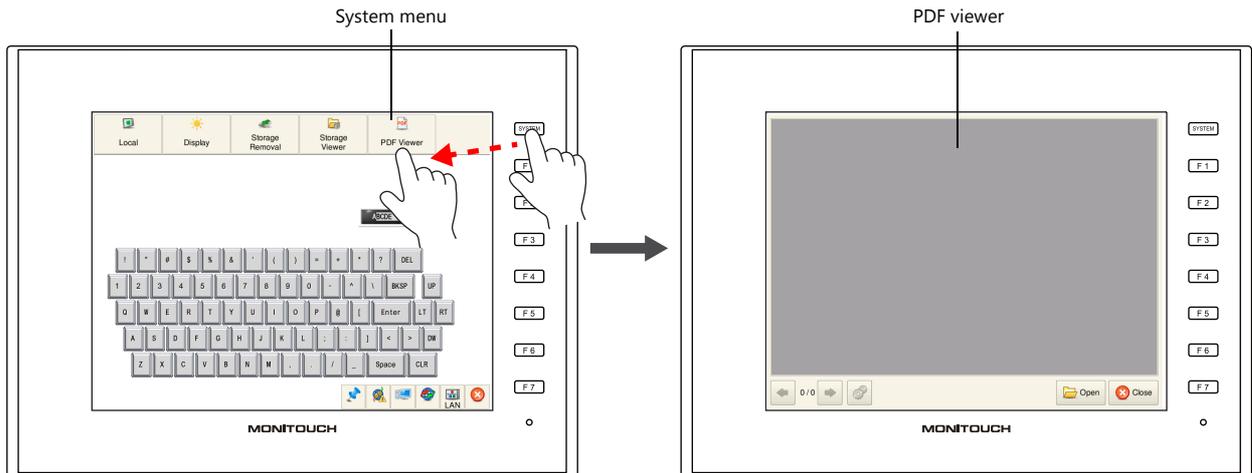
The PDF viewer can be displayed by tapping the [PDF Viewer] switch on the system menu. Therefore it can be displayed in both RUN mode and Local mode.

The PDF viewer can also be displayed in RUN mode by a command from the PLC.

 For details, refer to “13.3.2 Displaying by Commanding from PLC” page 13-5.

Press the [SYSTEM] switch to display the system menu.

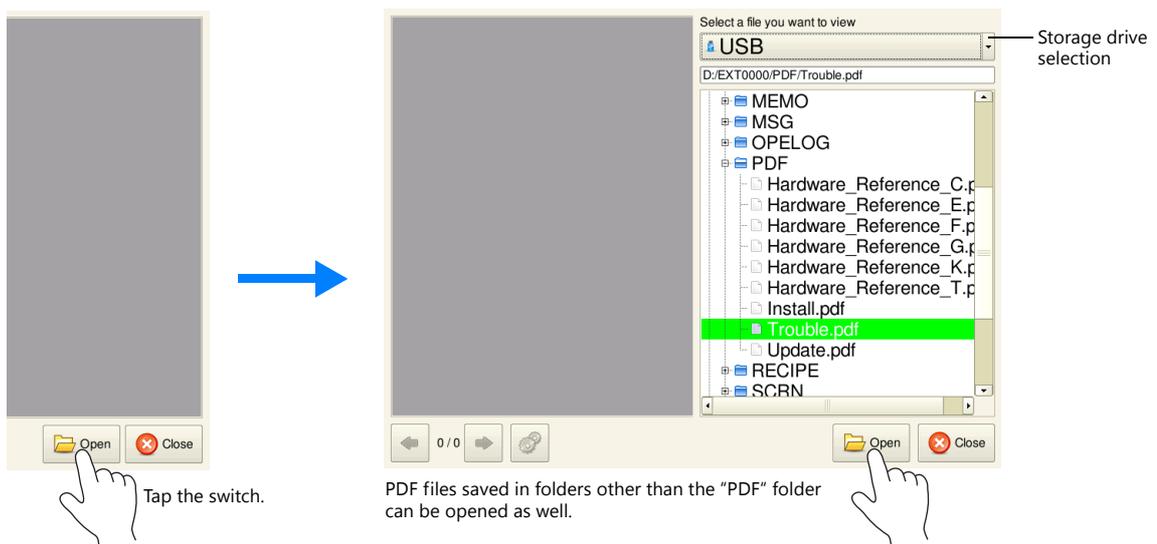
Tap the [PDF Viewer] switch to display the PDF viewer.



* If the [PDF Viewer] is not shown on the system menu, scroll the system menu sideways.

13.5.2 Changing PDF Files to Display

Tap the [Open] switch on the PDF viewer. Select the PDF file to display and tap the [Open] switch.

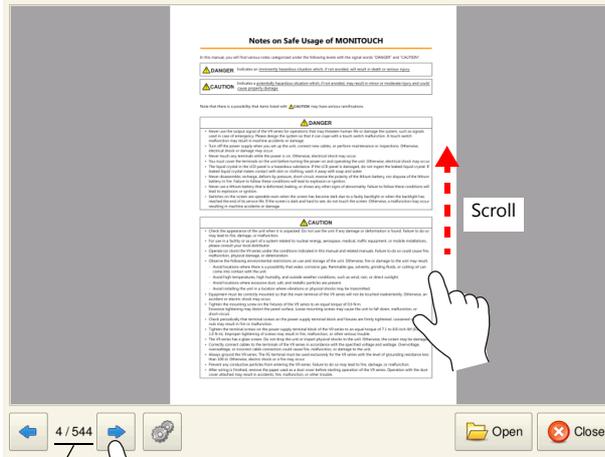


PDF files saved in folders other than the “PDF” folder can be opened as well.

* Larger PDF files will take more time to open.

13.5.3 Changing the Display Page

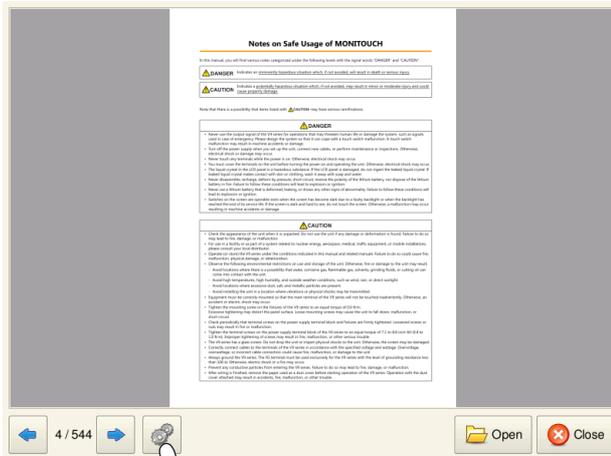
Tap the [←] and [→] switches on the PDF viewer or scroll the display to change the displayed page.



Current page number/Total pages Tap the [→] switch.

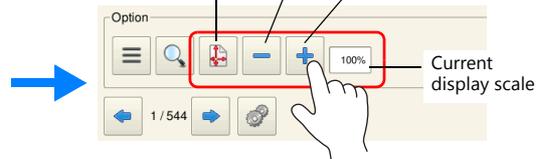
13.5.4 Display Scale

Tap the option switch on the PDF viewer. The following menu is displayed. Tap the [+] and [-] switches to enlarge and reduce the display respectively.

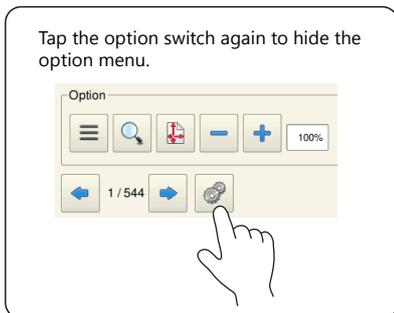


[+]: Enlarge by 25% (up to 200%)
[-]: Reduce by 25% (down to 50%)

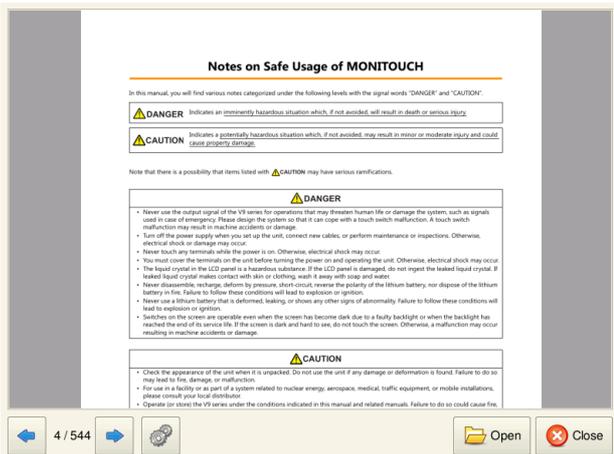
Fit page Reduce Enlarge



Tap the [+] switch to enlarge the display.



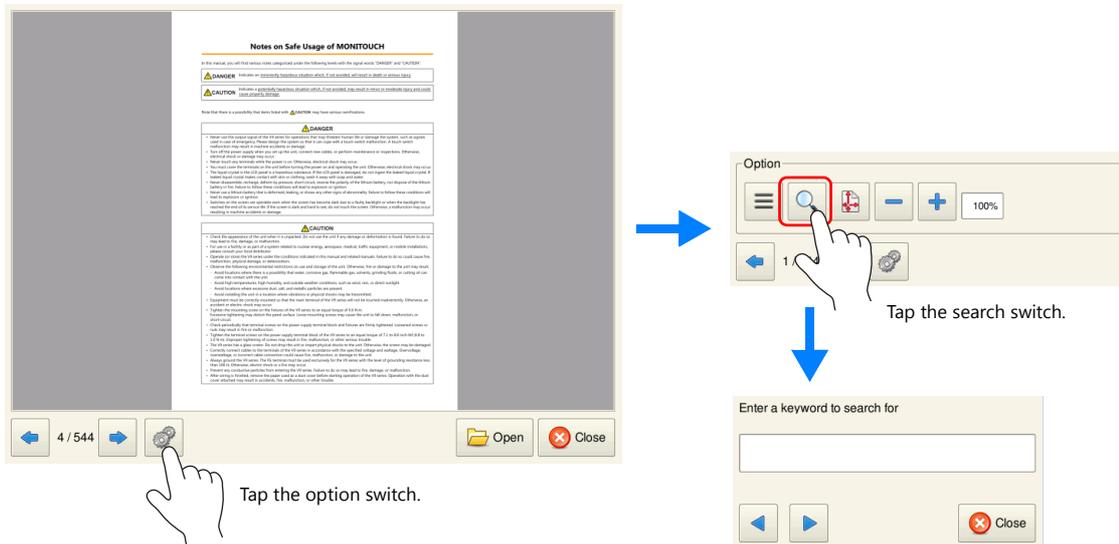
Tap the option switch again to hide the option menu.



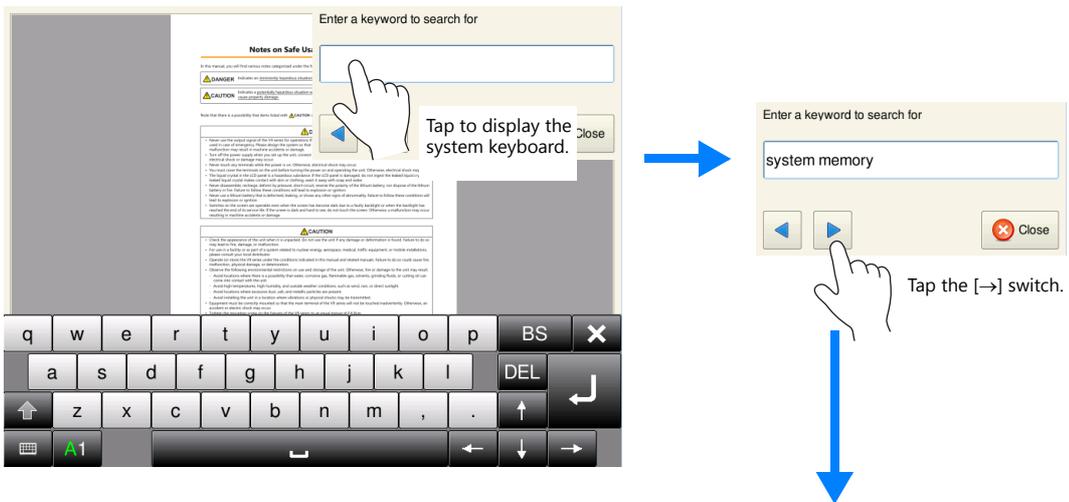
13.5.5 Search Function

Text

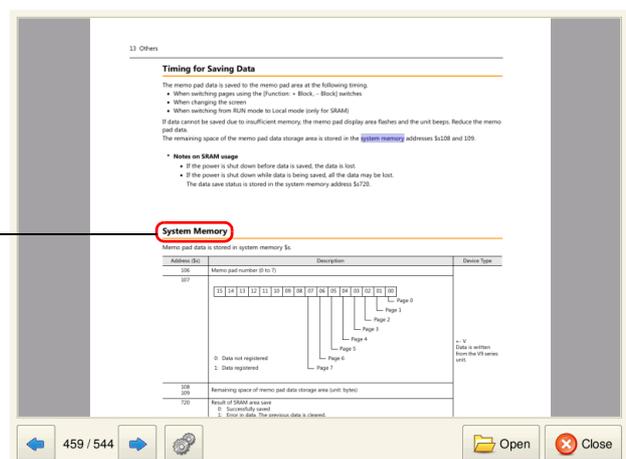
Tap the option switch on the PDF viewer. The following menu is displayed.
Tap the search switch on the PDF viewer to display the search window.



Tap the [Enter a keyword to search for] field. The system keyboard appears. Enter the text to search for and tap the [←] or [→] switch. The cursor moves to text that matches the search.



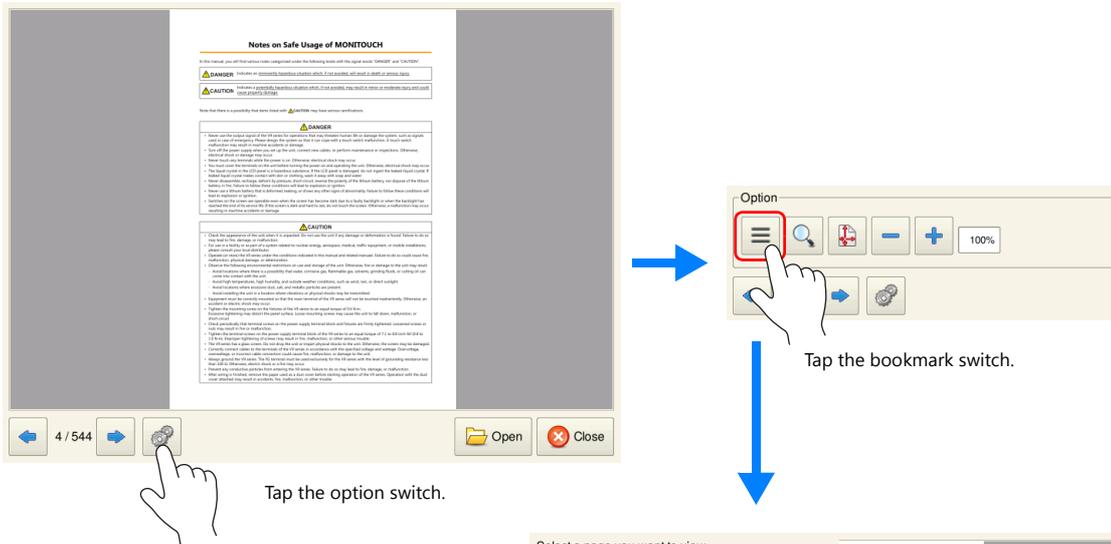
The cursor moves to text that matches the search.



* To enter Japanese text, the [System Setting] → [Japanese Conversion Function Setting] checkbox must be selected.

Bookmarks

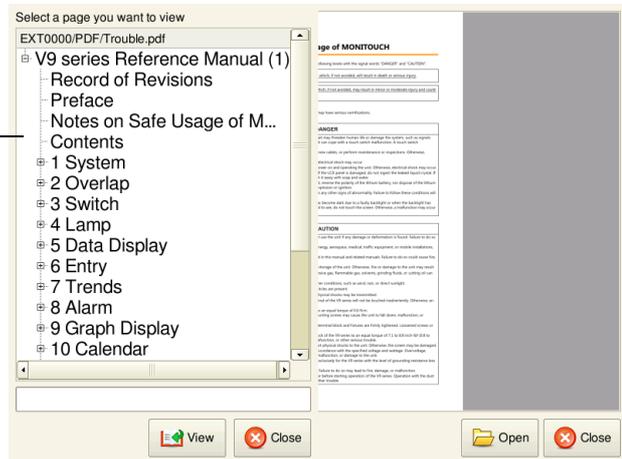
Tap the option switch on the PDF viewer. The following menu is displayed.
Tap the bookmark switch on the PDF viewer.



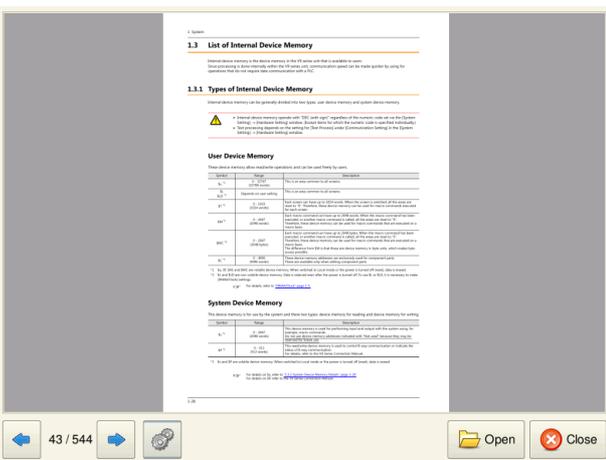
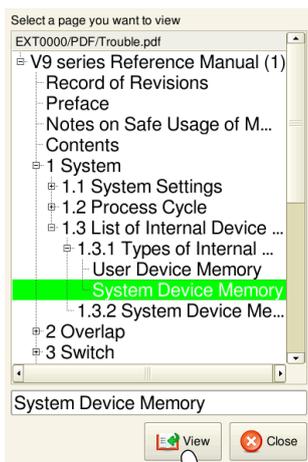
Tap the option switch.

Tap the bookmark switch.

Bookmarks



Select a bookmark and tap the [View] switch.



The selected page is displayed.

14 String Table Function

14.1 Overview

- Strings that are used many times throughout the screen program can be registered to a string table. Once registered, they can be used for text items as well as switches and lamps by simply selecting the string from the string table. If a string needs to be changed, changing the string in the string table will change all occurrences in the screen program, thereby shortening the time required to modify the screen program.

String table

No.	Text	Group Name
0	MENU	Title
1	Logging	Title
2	Alarm History	Title
3	Operation Screen	Title
4	Manual Operation	Title
5	Current	Logging
6	Humidity	Logging
7	Temperature	Logging
8		

Screen[0] Text
Screen[1] Switch
Screen[2] Switch
Screen[3] Switch
Screen[4] Switch

Refer to the string table and set the string to use for each item and part.
(Example string: MENU)

Screen No. 0 Text

Screen No. 1 Switch

Screen No. 2 Switch

- Additions and modifications can be made on the string table from each item and part as well.

Items and Parts that can Use the String Table

- Switch
- Lamp
- Text
- Multi-text

14.2 Registration Method

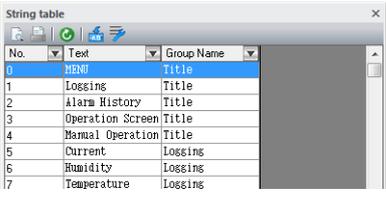
This section describes how to register strings to the string table and how to use the registered strings. There are two registration methods.

- Registration from the string table
- Direct registration from each part and item

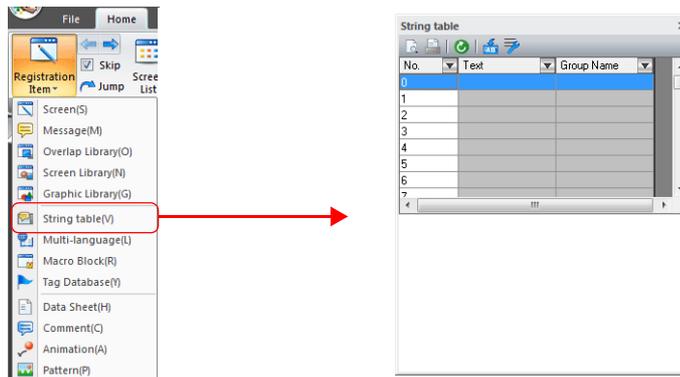
14.2.1 Registration from String Table

This section describes the procedure for preparing the following string table as an example and selecting strings for switches from the prepared string table.

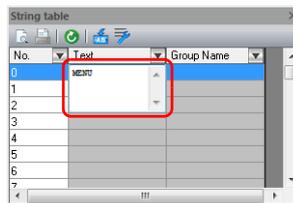
Text	Group Name
MENU Logging Alarm History Operation Screen Manual Operation	Title
Current Humidity Temperature	Logging



1. Click [Home] → [Registration Item] → [String table] to open a string table.

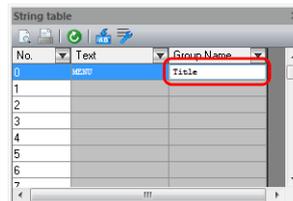


2. Double-click a [Text] field and enter the string.



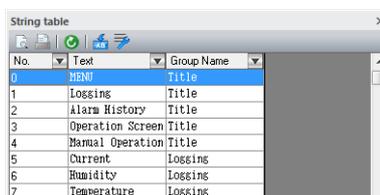
When entering multiple lines in the displayed field, press the [Enter] key.

3. Double-click a [Group Name] field and enter the name for categorizing the string.

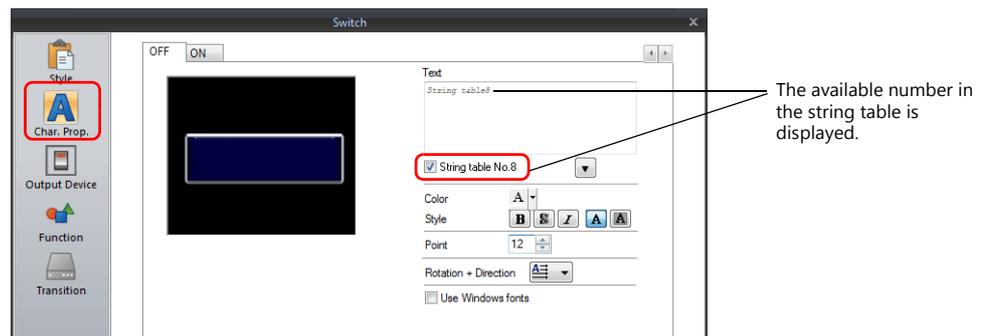


This field can be left blank if a group name is not required.

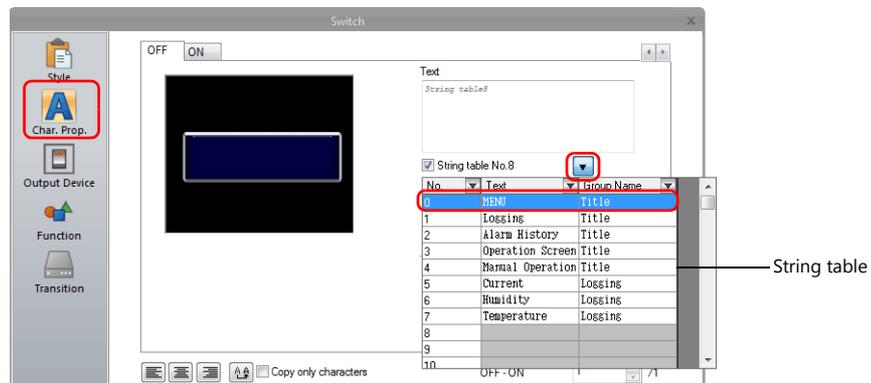
4. Register the other strings in the same procedure by following steps 2 and 3.



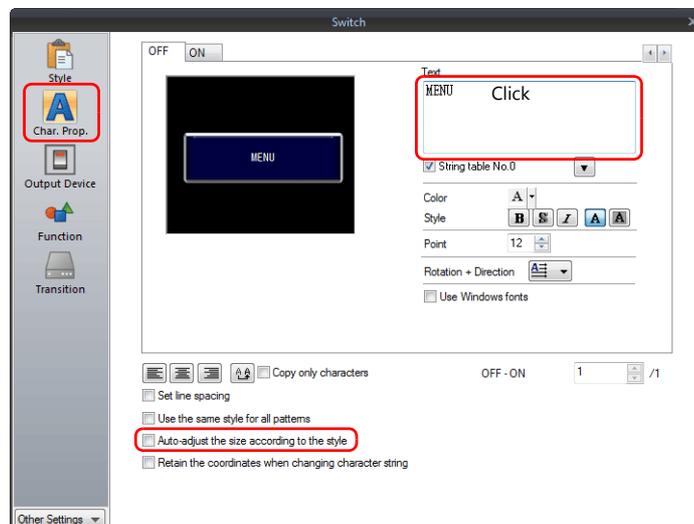
5. Double-click a switch to display its settings window.
6. Click [Char. Prop.] in the left menu pane and select the [String table No. XX] checkbox.



7. Click the down button to display the string table and then select the string to use from the table.



8. Click inside the [Text] field of the settings window. The selected string is displayed in the [Text] field.



For switch and lamp parts, the text display will vary according to the setting for [Auto-adjust the size according to the style].

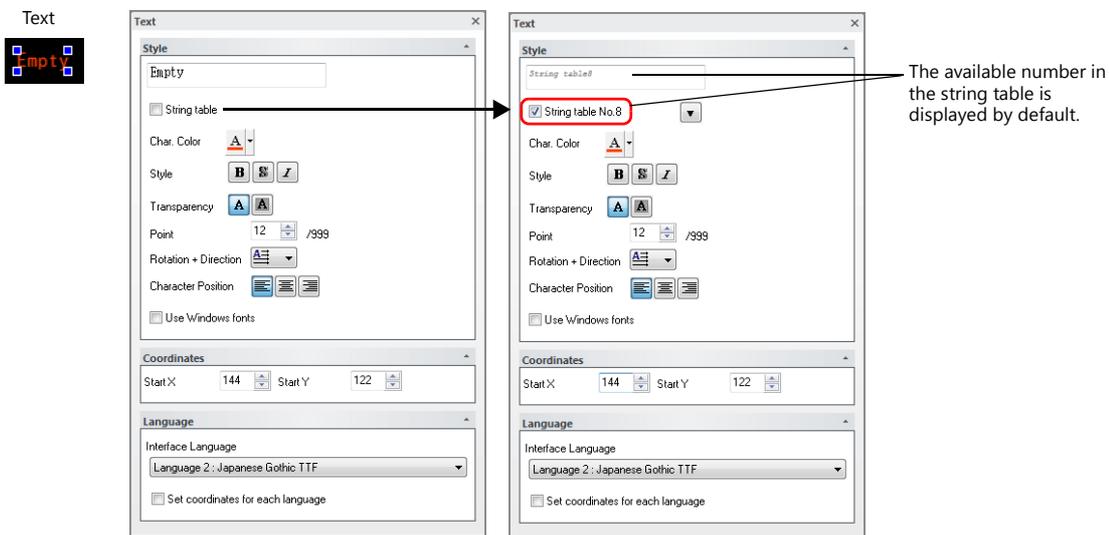
- Selected
The part will be resized according to the length of the string.
- Unselected
Only the characters that will fit in the current part size are displayed.
(The number of rows that can be displayed depends on the maximum number of rows for the part/item type. Switches and lamps: 4 rows, Multi-text: 38 rows)

This completes the necessary settings.
Configure the font size and color as necessary.

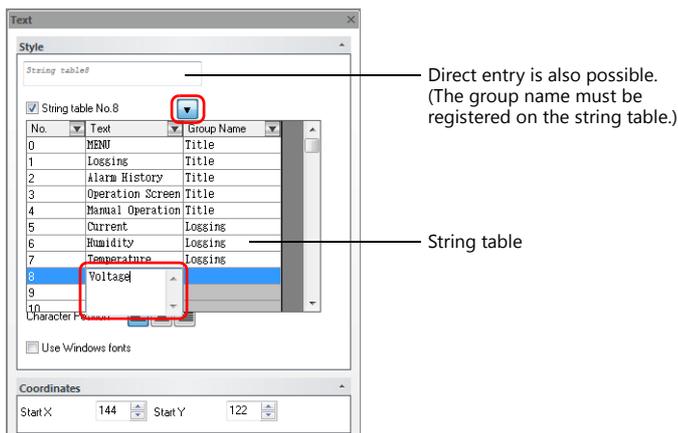
14.2.2 Direct Registration from Parts and Items

This section describes the procedure for registering a string from a text item to the string table as an example.

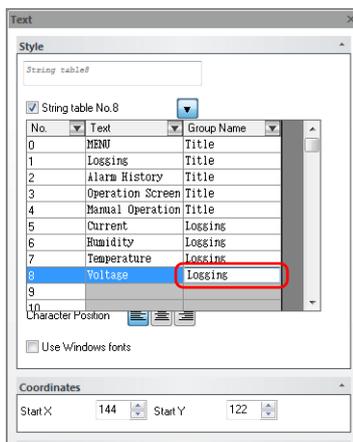
1. Click or double-click a text item placed on the screen to display its item view window. Select the [String table] checkbox.



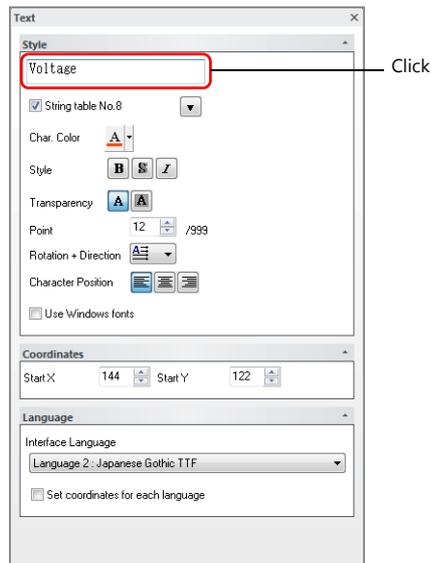
2. Click the down button to display the string table and then enter a string in an available number.



3. Register the group name.



4. With the relevant string table number selected, click on the text field. The string is displayed in the text field.



This completes the registration process.
Configure the font size and color as necessary.

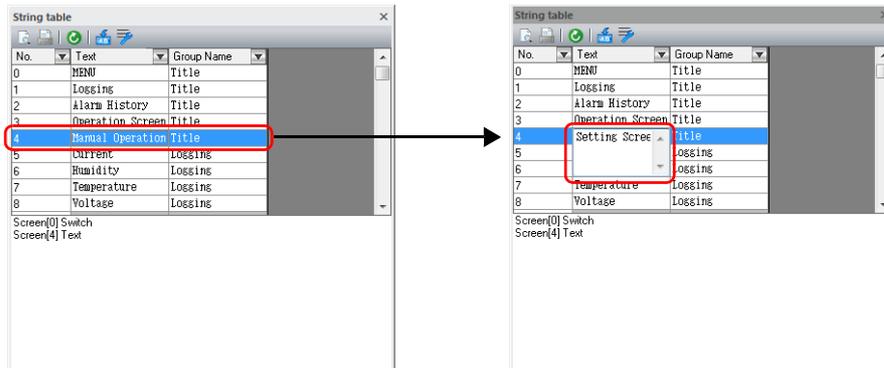
14.3 Changing Strings

This section describes the procedure for changing a string that is referencing the string table. There are two methods.

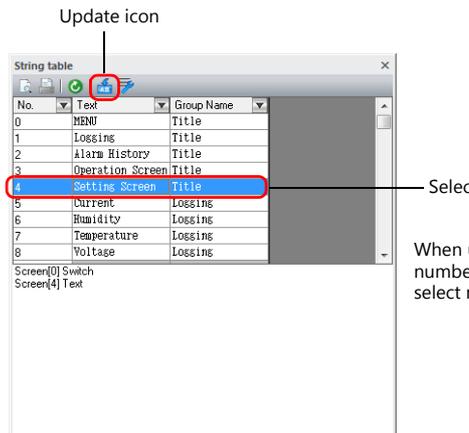
- Changing from the string table
- Changing from parts and items

14.3.1 Changing from String Table

1. Click [Home] → [Registration Item] → [String table] to open the string table and modify the relevant string.

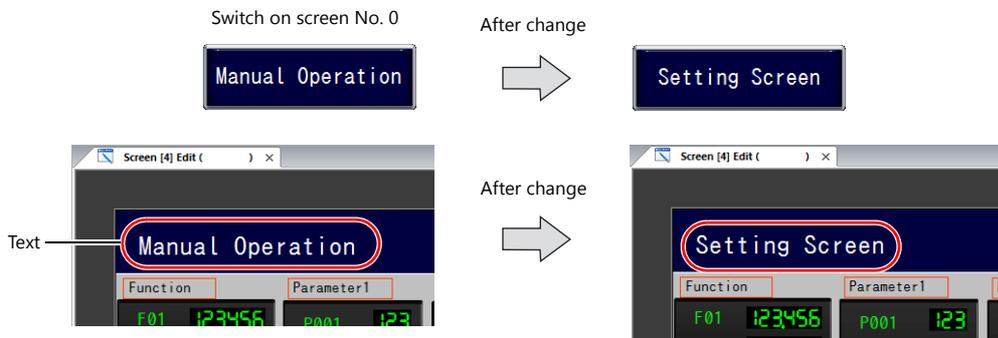


2. With the changed string number selected, click the update icon.



When updating changes for multiple string numbers at once, hold down the [Shift] key to select multiple strings.

All locations where the string is used are updated.



This completes the change.

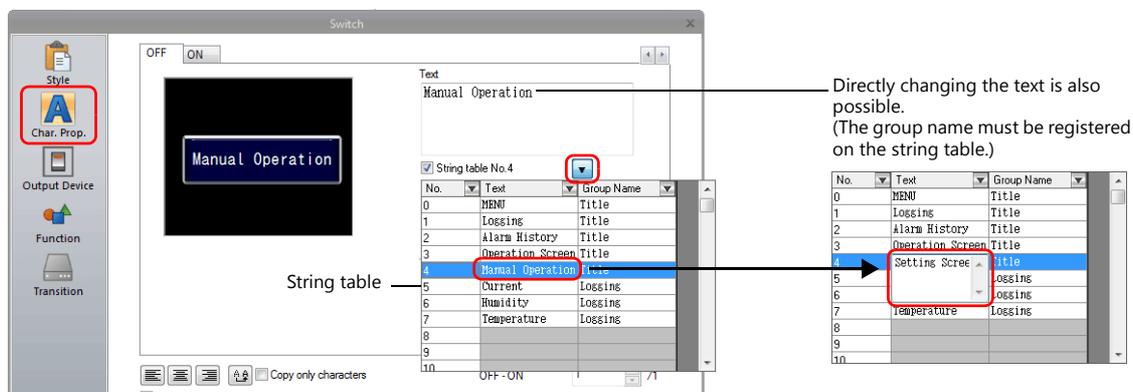


If a string has been changed, be sure to click the update icon. Locations where the string is currently in use will not be updated unless the icon is clicked.

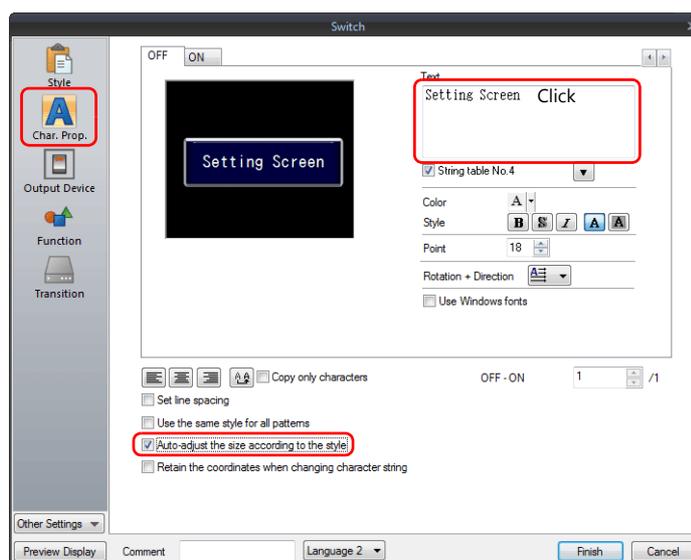
14.3.2 Changing from Parts and Items

This section describes the procedure for changing the text on a switch.

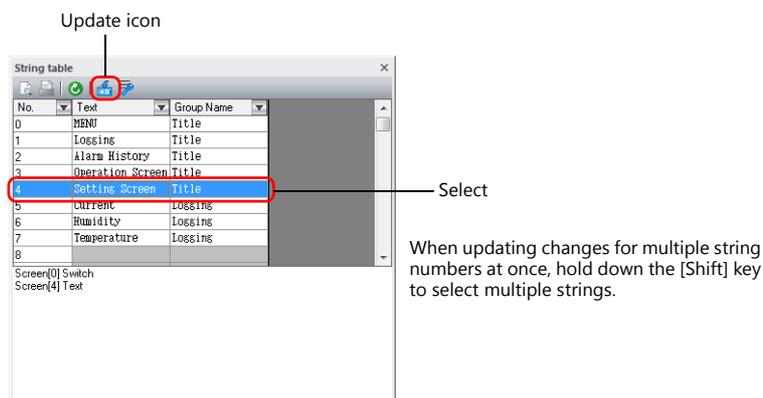
1. Double-click a switch to display its settings window.
2. Click [Char. Prop.] in the left menu pane.
3. Click the down button to display the string table and then change the relevant string on the table.



4. With the relevant string table number selected, click on the text field. The string is displayed in the text field. (The string table is updated as well.)



5. Click [Home] → [Registration Item] → [String table] to open the string table. With the changed string number selected, click the update icon.

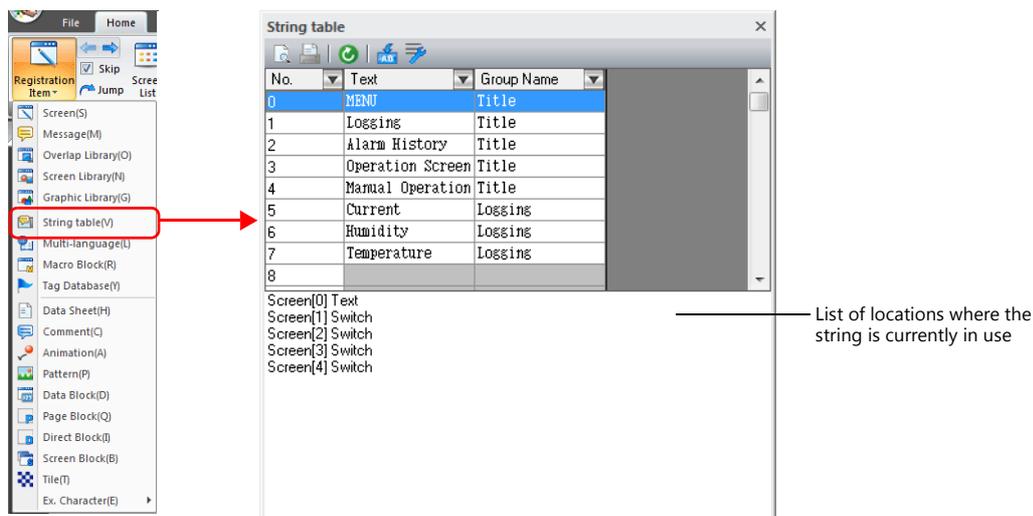


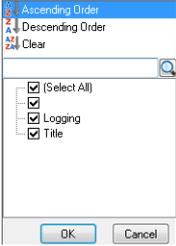
All locations where the string is used are updated.

This completes the change.

14.4 Editing the String Table

Click [Home] → [Registration Item] → [String table].



Item	Description
No.	Indicates the registration number of the string. No. 0 to 32767
Text	Register strings. Press [Enter] to input line breaks. Maximum of 254 characters, 128 lines
Group Name	Register a group name for categorizing the string. This field can be left blank if a group name is not required. Maximum of 256 characters, 1 line
Sort	Sort the table by [No.], [Text], or [Group Name]. 
List of locations where the string is currently in use	List of locations where the selected string is currently in use Double-click on a location to jump to the relevant location.

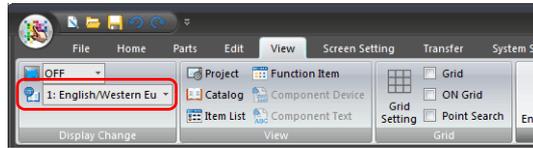
Enlarged view



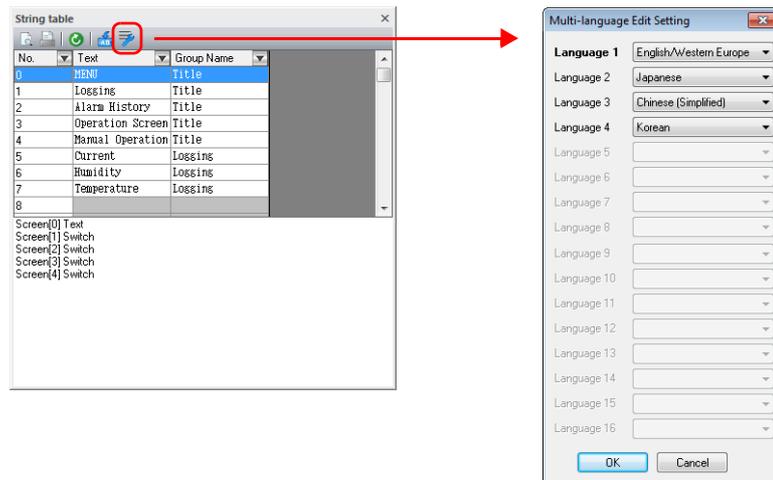
Item	Description
1. Print preview	Preview printer output of the string table.
2. Print current window	Print the string table.
3. Refresh	Refresh to the latest state.
4. Update	Update the locations where the currently selected string is used. Use this icon for updating after editing strings on the string table.
5. Multi-language edit setting	Specify the display language for the [Text] and [Group Name] columns on the string table. * The window displayed from this icon is also displayed from [Home] → [Registration Item] → [Multi-language].

14.5 Multi-language Configuration

- When creating a multi-language screen program, a string table can be prepared per language. Change the language for editing from the [View] → [Display Change] group.



- The [Text] and [Group Name] columns of the string table are displayed in the languages selected in the [Multi-language edit Setting] window. When displaying languages using Windows fonts, the display and editing of such languages is also possible regardless of the settings configured in the [Font Setting] window.



- * The settings made on the [Multi-language edit Setting] window are saved to the screen program.

14.6 Notes

Multi-language Screen Programs

- When using the string table for a part or item, all of the text displayed on that part or item must be selected on the string table.
- When exporting from [System Setting] → [Font Setting], only the string table is exported. The locations where the strings are used are not exported.
If strings are changed on the exported file, the locations where the relevant string is used will be updated when the file is imported.
- In the [Multi-language Edit] tab window ([Home] → [Registration Item] → [Multi-language]), the string table is displayed but the locations where the strings are used are not.
Changes made to the string table on the [Multi-language Edit] tab window are reflected to the locations where the string is used.

Other Notes

- When a string registered to the string table with multiple rows is selected for a text item, all line breaks are ignored and the entered characters are displayed in one line.
- When all numbers of the string table are used (No. 0 to 32767) and there is no available number, if the checkbox for using the string table is selected on any item settings window, No. 0 will be automatically selected.

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