


Programmable Controller CJ-series

General-purpose Serial Connection Guide (RS-232C)

MARS TOHKEN SOLUTION CO.LTD.

Fixed Mount 2D Image Reader
(MVF-300/500 Series)

A teal-colored rectangular box with a thin blue border. Inside the box, the words "Network", "Connection", and "Guide" are stacked vertically in a white, sans-serif font.

Network
Connection
Guide

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1. Related Manuals

To ensure system safety, make sure to always read and follow the information provided in all Safety Precautions and Precautions for Safe Use in the manuals for each device which is used in the system.

The table below lists the manuals provided by MARS TOHKEN SOLUTION CO.LTD. (hereinafter referred to as “MARS TOHKEN SOLUTION”) and OMRON Corporation (hereinafter referred to as “OMRON”), which pertain to this guide.

Manufacturer	Cat. No.	Model	Manual name
OMRON	W472	CJ2M-CPU□□ CJ2H-CPU6□ CJ2H-CPU6□-EIP	CJ Series CJ2 CPU Unit Hardware USER'S MANUAL
OMRON	W473	CJ2M-CPU□□ CJ2H-CPU6□ CJ2H-CPU6□-EIP	CJ Series CJ2 CPU Unit Software USER'S MANUAL
OMRON	W336	CJ1W-SCU□1-V1 CJ1W-SCU□2	CJ Series Serial Communications Units OPERATION MANUAL
OMRON	W474	CJ2□-CPU□□	CJ Series Programmable Controllers INSTRUCTIONS REFERENCE MANUAL
OMRON	W446	CXONE-AL□□C-V4 / AL□□D-V4	CX-Programmer OPERATION MANUAL
MARS TOHKEN SOLUTION	-	MVF-300	Operation Manual MVF-300 Series Fixed mount 2D Image Reader 3 rd Edition

2. Terms and Definitions

Term	Explanation and Definition
PLC link	<p>A function which enables a MARS TOHKEN SOLUTION image reader to directly read or write data to PLC data memory by connecting a PLC to the image reader through RS-232C or LAN interface.</p> <p>This eliminates the need to create a communication program and cuts the time required for programming.</p>

3. Precautions

- (1) Understand the specifications of devices which are used in the system. Allow some margin for ratings and performance. Provide safety measures, such as installing a safety circuit, in order to ensure safety and minimize the risk of abnormal occurrence.
- (2) To ensure system safety, make sure to always read and follow the information provided in all Safety Precautions and Precautions for Safe Use in the manuals for each device which is used in the system.
- (3) The user is encouraged to confirm the standards and regulations that the system must conform to.
- (4) It is prohibited to copy, to reproduce, and to distribute a part or the whole of this guide without the permission of OMRON Corporation.
- (5) The information contained in this guide is current as of February 2017. It is subject to change for improvement without notice.

The following notations are used in this guide.



Caution

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



Precautions for Correct Use

Precautions on what to do and what not to do to ensure proper operation and performance.



Additional Information

Additional information to read as required.

This information is provided to increase understanding or make operation easier.

Symbol



The triangle symbol indicates precautions (including warnings).
The specific operation is shown in the triangle and explained in the text.
This example indicates a general precaution.

4. Overview

This guide describes procedures for connecting a MARS TOHKEN SOLUTION MVF-300/500 series Fixed mount 2D Image Reader (hereinafter referred to as the "Image Reader") to an OMRON CJ-series Programmable Controller + Serial Communications Unit (hereinafter referred to as the "PLC") via serial communications, for using PLC link for Image Readers and for checking their communication status.

Refer to *Section 6. Serial Communications Settings* and *Section 7. Serial Communications Connection Procedure* to understand setting methods and key points to perform serial communications and to use PLC link for Image Readers.

The operation specifications of the Image Reader with PLC link are shown below.

The Image Readers read a code by reading or writing the following PLC data memory. In this guide, the Image Reader reads or writes the PLC data memory at the start address "D01000" and reads the two-dimensional code (2D code) which is described in 7.4.2.

Checking the Sent and Received Data.

Address	Area name	Area description
D01000	Trigger area	Area to trigger the Image Reader to start reading
D01001 : D01008	Reserved	-
D01009	Area for the number of digits of read data	Area to store the number of digits of read data
D01010 : D01033	Read data area	Area to store read data

The Image Reader reads a code in the following order.

- (1) The PLC writes 1 in the "Trigger area".
- (2) The Image Reader starts reading a code.
- (3) After reading the code, the Image Reader stores the read data and the number of digits of read data in the "Read data area" and the "Area for the number of digits of read data", respectively.
- (4) The Image Reader clears the "Trigger area" to zero.



Additional Information

Contact MARS TOHKEN SOLUTION CO.LTD. for more details on operation specifications of Image Readers with PLC link.

5. Applicable Devices and Device Configuration

5.1. Applicable Devices

The applicable devices are as follows:

Manufacturer	Name	Model
OMRON	CJ2 CPU Unit	CJ2□-CPU□□
OMRON	Serial Communications Unit	CJ1W-SCU□1-V1 CJ1W-SCU□2
MARS TOHKEN SOLUTION	Image Reader	MVF-500□ MVF-300□□□



Precautions for Correct Use

In this guide, the devices with models and versions listed in 5.2. *Device Configuration* are used as examples of applicable devices to describe the procedures for connecting the devices and checking their connections.

You cannot use devices with versions lower than the versions listed in 5.2.

To use the above devices with models not listed in 5.2. or versions higher than those listed in 5.2., check the differences in the specifications by referring to the manuals before operating the devices.



Additional Information

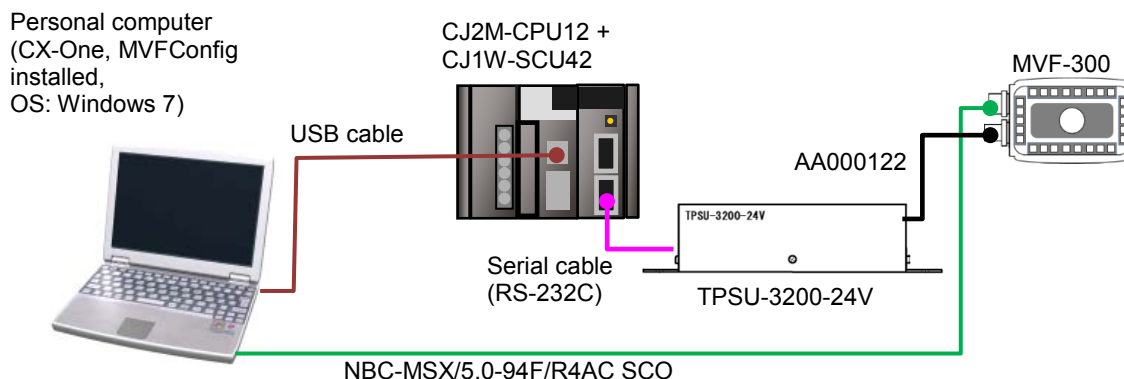
This guide describes the procedures for establishing the network connections.

It does not provide information on operation, installation, wiring method, device functionality, or device operation, which is not related to the connection procedures.

Refer to the manuals or contact the device manufacturer.

5.2. Device Configuration

The hardware components to reproduce the connection procedures in this guide are as follows:



Manufacturer	Name	Model	Version
OMRON	Serial Communications Unit	CJ1W-SCU42	Ver.2.0
OMRON	CPU Unit	CJ2M-CPU12	Ver.2.0
OMRON	Power Supply Unit	CJ1W-PA202	
OMRON	CX-One	CXONE-AL□□C-V4 /AL□□D-V4	Ver.4.□□
OMRON	CX-Programmer	(Included in CX-One)	Ver.9.52
-	Personal computer (OS: Windows 7)	-	
-	USB cable (USB 2.0 type B connector)	-	
-	Serial cable (RS-232C)	-	
MARS TOHKEN SOLUTION	Image Reader	MVF-300	System version: M66C-V2.4i ^{*1} Decode version: M66A-V2.4 ^{*2}
MARS TOHKEN SOLUTION	LAN cable for MVF series	NBC-MSX/5,0-94F/R4AC SCO	
MARS TOHKEN SOLUTION	MVF-300 Image reader cable ^{*3}	AA000122	
MARS TOHKEN SOLUTION	Power Supply Unit	TPSU-3200-24V	
MARS TOHKEN SOLUTION	MVFConfig	-	Ver.1.4.12

*1. The MVF-300 series can be used with the system version M66C-V2.4b or a higher version.
The MVF-500 series can be used with the system version M53C-V1.0a or a higher version.

*2. The MVF-300 series can be used with the decode version M66A-V2.4b or a higher version.
The MVF-500 series can be used with the decode version M53A-V1.0a or a higher version.

*3. The model number of the image reader cable for MVF-500 series is AA000100.



Precautions for Correct Use

Update CX-Programmer to the version specified in this *Clause 5.2.* or to a higher version. If you use any version other than the one specified in this guide, the procedures described in *Section 7.* and subsequent sections may not be applicable. In that case, use the equivalent procedures described in this guide by referring the *CX-Programmer OPERATION MANUAL* (Cat. No. W446).



Additional Information

For information on the serial cable (RS-232C), refer to *3-4 RS-232C and RS-422A/485 Wiring* of the *CJ Series Serial Communications Units OPERATION MANUAL* (Cat. No. W336).



Additional Information

Contact MARS TOHKEN SOLUTION CO.LTD. for specifications of the power supply unit.



Additional Information

The system configuration in this guide uses a USB for the connection between the personal computer and the PLC. For information on how to install the USB driver, refer to *A-5 Installing the USB Driver* in *Appendices* of the *CJ-series CJ2 CPU Unit Hardware USER'S MANUAL* (Cat. No. W472).

6. Serial Communications Settings

This section describes parameters (including the PLC data memory allocation) and wiring that are all defined in this guide.

6.1. Parameters

The following shows the parameters required for connecting the PLC and the Image Reader via serial communications and for using PLC link for Image Readers.

6.1.1. Communication Settings between Personal Computer and Image Reader

In this guide, the parameters of the Image Reader are set on the personal computer via Ethernet communications.

Setting item	Personal computer	Image Reader
IP address	192.168.209.1	192.168.209.10 (Default)
Subnet mask	255.255.255.0	255.255.255.0 (Default)

6.1.2. Communication Setting between Serial Communications Unit and Image Reader

Setting item	Serial Communications Unit	Image Reader	
		Set value	Setting
Unit number	0	-	-
Communications (Connection) port	Port 2	-	-
Serial communications mode	Host link	-	-
Baud rate	9600bps (Default)	9600bps (Default)	-
Data length	8 bits	-	-
Parity	None	-	-
Stop bits	1 bit	-	-
Frame	-	8N1 (Default)	Data length: 8 bits Parity: None Stop bit: 1 bit
CTS control (RS/CS)	No	OFF (Default)	-
1:N/1:1 protocol setting	1:1 protocol	-	-
232/422 selector switch	-	RS232	-
Select port	-	RS-232C (Default)	Output destination of data read by the Image Reader: RS-232C
Address	-	1000	Start address of the data memory: D01000
Mode (PLC link mode)	-	SysMacCXRS232C	Connection destination of the Image Reader: OMRON SYSMAC series Interface to use for connection: RS-232C
Padding	-	Null (Default)	Padding character: 0x00
Time	-	10 (Default)	Wait time of trigger area monitoring time: 10s
Trigger area interval	-	10 (Default)	Trigger area monitoring time: 10ms
Trigger area sync	-	ON (Default)	SYNC IN by trigger area: Enable

6.2. Cable Wiring

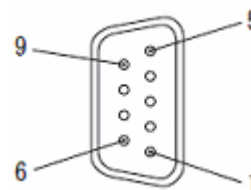
For details on cable wiring, refer to *SECTION 3 Installation and Wiring* of the *CJ Series Serial Communications Units OPERATION MANUAL* (Cat. No. W336).

Check the connector configurations and pin assignments before wiring.

■ Connector configurations and pin assignments

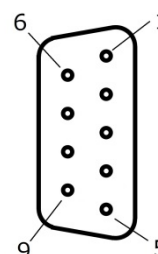
CJ1W-SCU42 Serial Communications Unit applicable connector: D-sub 9-pin female

Pin No.	Symbol	Signal name	I/O
1	FG	Shield	-
2	SD	Send data	Output
3	RD	Receive data	Input
4	RS	Request to send	Output
5	CS	Clear to send	Input
6	5V	Power supply	-
7	DR	Data set ready	Input
8	ER	Data terminal ready	Output
9	SG	Signal ground	-
Shell	FG	Shield	-

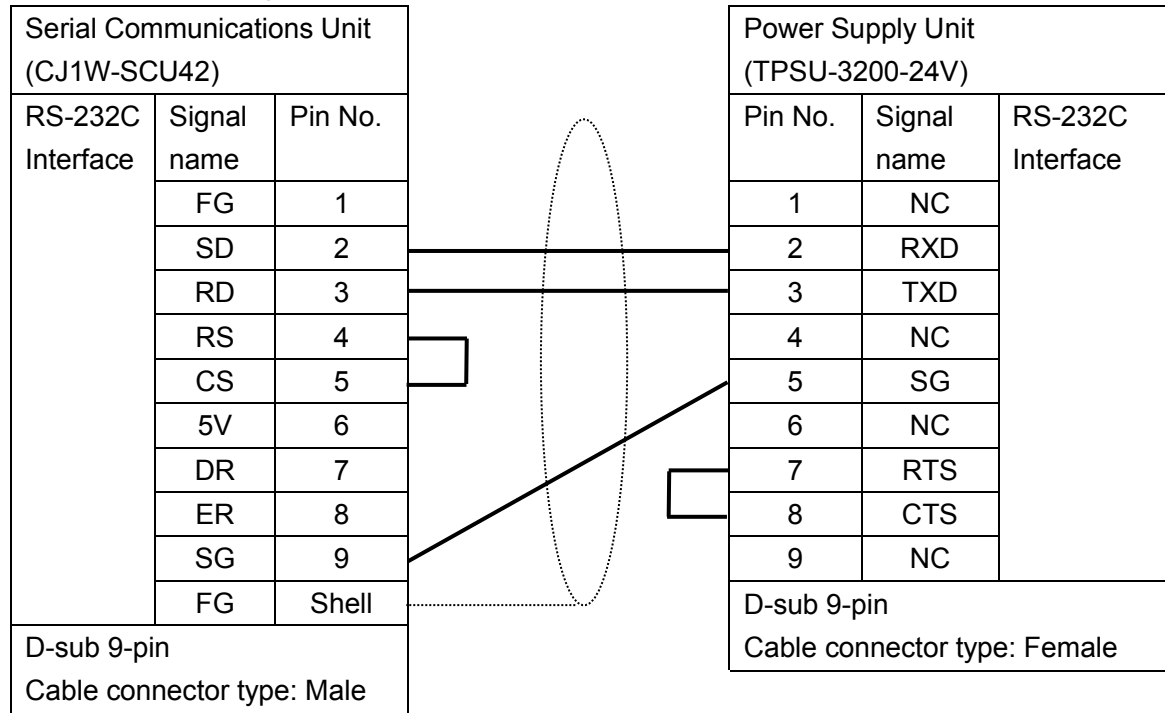


TPSU-3200-24V Power Supply Unit applicable connector: D-sub 9-pin male

Pin No.	Symbol	Signal name	I/O
1	NC	-	-
2	RXD	Received data (RS-232C)	Input
3	TXD	Transmitted data (RS-232C)	Output
4	NC	-	-
5	SG	Signal ground	-
6	NC	-	-
7	RTS	Transmission request (RS-232C)	Output
8	CTS	Transmission permission (RS-232C)	Input
9	NC	-	-



■ Cable and Pin assignments

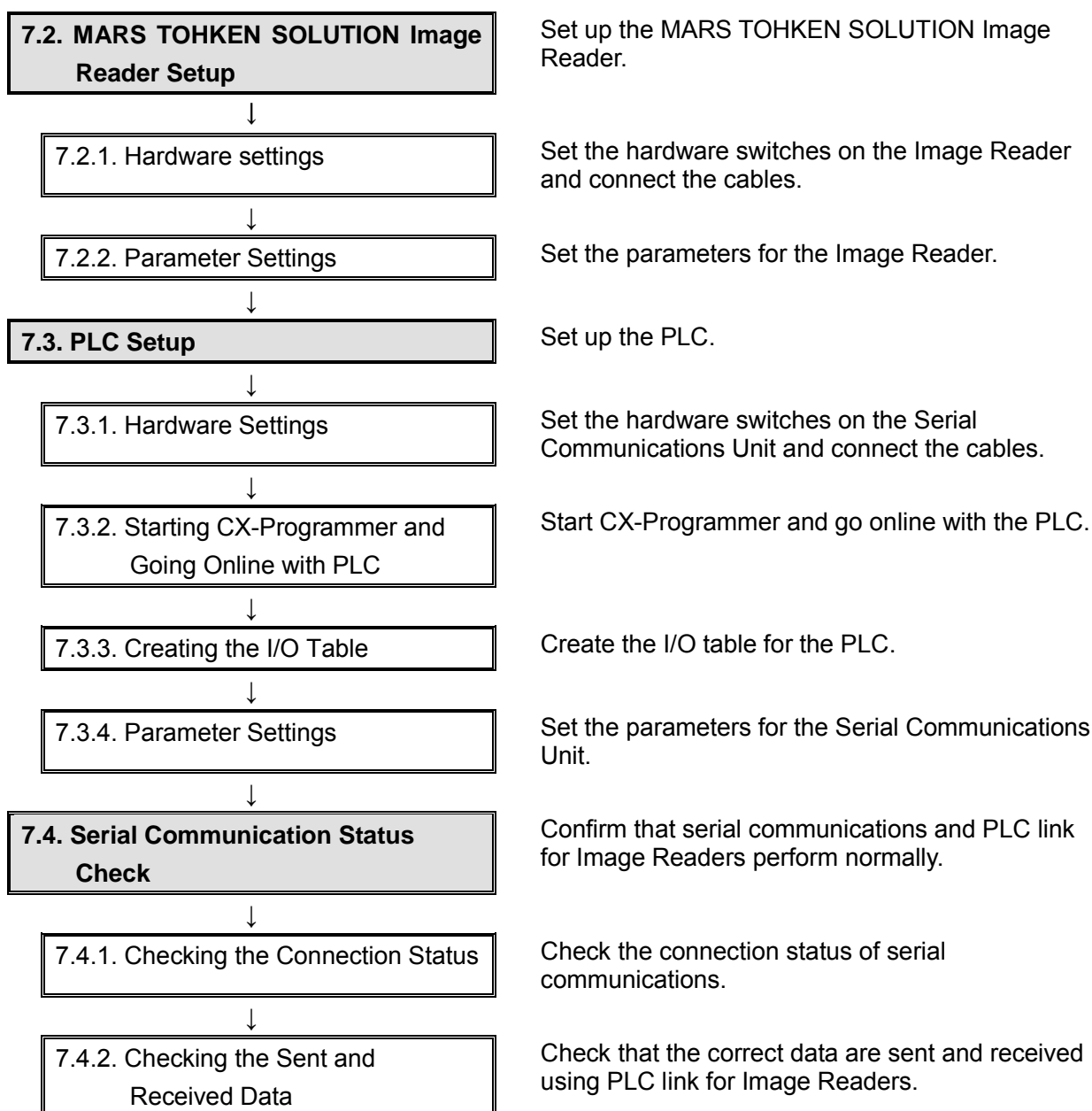


7. Serial Communications Connection Procedure

This section describes the procedures for connecting the PLC to the Image Reader via serial communications and for using PLC link for Image Readers. The explanations of the procedures for setting up the PLC and the Image Reader given in this guide are based on the factory default settings. For the initialization, refer to *Section 8. Initialization Method*.

7.1. Work Flow

Take the following steps to connect the PLC to the Image Reader via serial communications and to use PLC link for Image Readers.



7.2. MARS TOHKEN SOLUTION Image Reader Setup

Set up the MARS TOHKEN SOLUTION Image Reader.

7.2.1. Hardware Settings

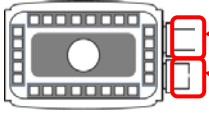
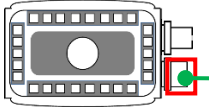
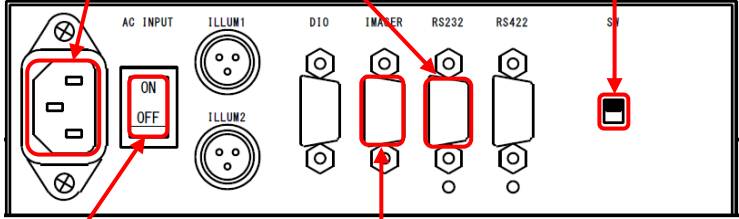
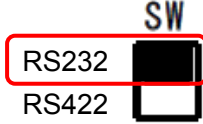

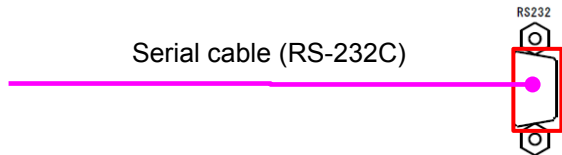
Set the hardware switches on the Image Reader and connect the cables.



Precautions for Correct Use

Make sure that the power supply is OFF when you set up.

If it is ON, the settings described in the following steps and subsequent procedures may not be applicable.

1	Make sure that Power Supply Unit is powered OFF.	
2	Check the position of the connectors on the front of Image Reader by referring to the figure on the right.	 <p>Scanner connector LAN connector</p> <p>On the front of Image Reader</p>
3	Connect LAN connector and Personal computer with LAN cable for MVF series.	 <p>LAN cable for MVF series</p> <p>Personal computer</p>
4	Check the positions of the hardware switches and the connectors on the rear of Power Supply Unit.	 <p>AC inlet</p> <p>RS-232C connector</p> <p>232/422 selector switch</p> <p>Power supply switch</p> <p>IMAGER connector</p> <p>On the rear of Power Supply Unit</p>
5	Set 232/422 selector switch to RS232.	 <p>SW</p> <p>RS232</p> <p>RS422</p>
6	Connect IMAGER connector on Power Supply Unit to Scanner connector with Image reader cable.	 <p>Image reader cable</p>
7	Connect a Serial cable (RS-232C) to RS-232C connector.	 <p>Serial cable (RS-232C)</p>

7.2.2. Parameter Settings

Set the parameters for the Image Reader.

The parameters are set in “MVFConfig” software.

Install the software on your personal computer beforehand.



Additional Information

Contact MARS TOHKEN SOLUTION CO.LTD. for information on how to install MVFConfig.

-
- | | |
|---|----------------------------|
| 1 | Turn ON Power Supply Unit. |
|---|----------------------------|
-

- 2 Set the IP address of Personal computer to 192.168.209.1.

*The IP address can be changed in the following way.

- (1) Start Personal computer and log in using an administrator account. From the Windows Start menu, select **Control Panel - Network and Internet - Network and Sharing Center**, and click **Change Adapter Settings**. Double-click **Local Area Connection**.

*The operation procedure may differ depending on the environment of your personal computer.

- (2) The Local Area Connection Status Dialog Box is displayed. Click **Properties**.

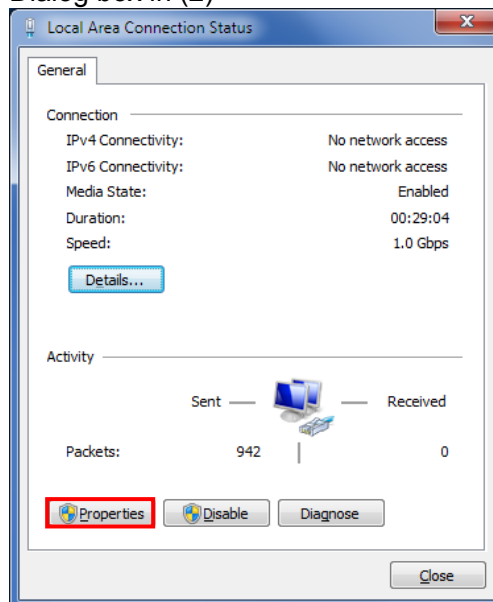
- (3) The Local Area Connection Properties Dialog Box is displayed. Select **Internet Protocol Version 4 (TCP/IPv4)**, and click **Properties**.

*The display may differ depending on the configuration of your personal computer.

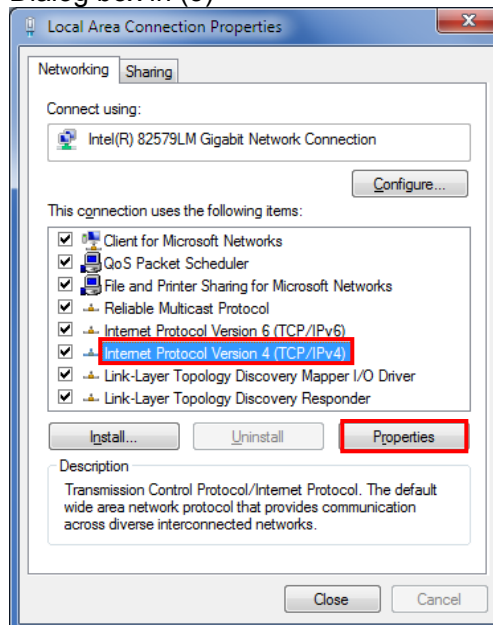
- (4) The Internet Protocol Version 4 (TCP/IPv4) Properties Dialog Box is displayed. Select *Use the following IP address*, and set the IP address to 192.168.209.1 and the subnet mask to 255.255.255.0. Click **OK**.

- (5) Click **Close** or **OK** to close all the displayed dialog boxes.

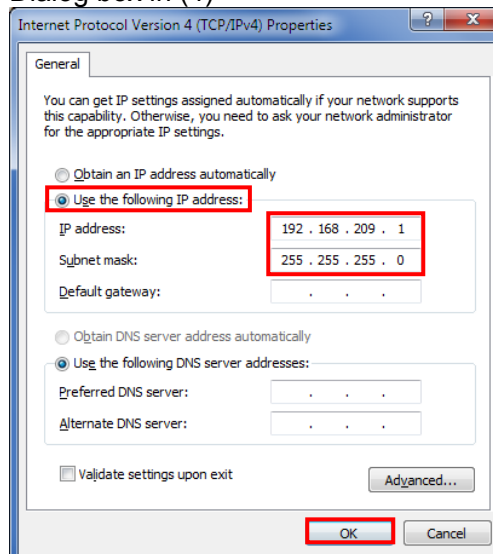
Dialog box in (2)




Dialog box in (3)

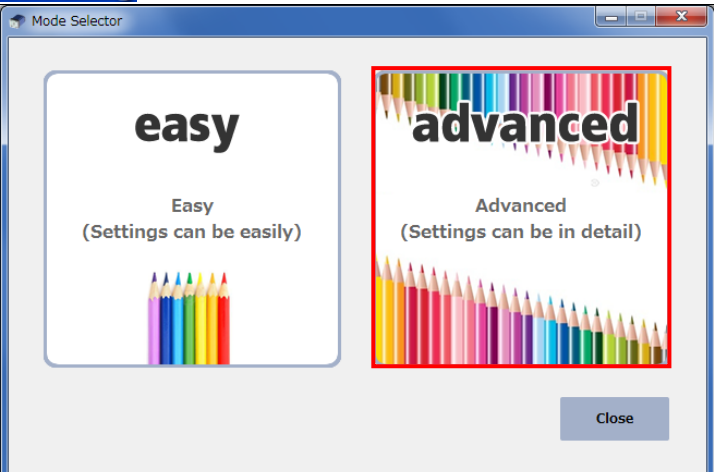


Dialog box in (4)



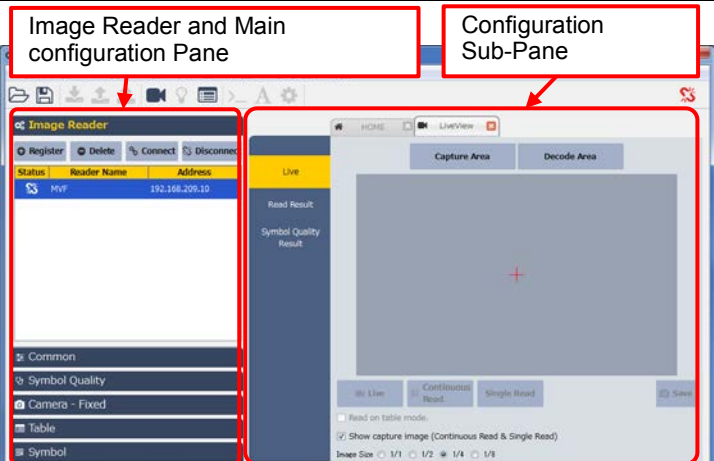
- 3 Start MVFConfig on Personal computer.


- 4 MVFConfig starts.
The Mode Selector Window is displayed.
Click **advanced**.


- 5 The MVF Config Window (detail configuration) is displayed.

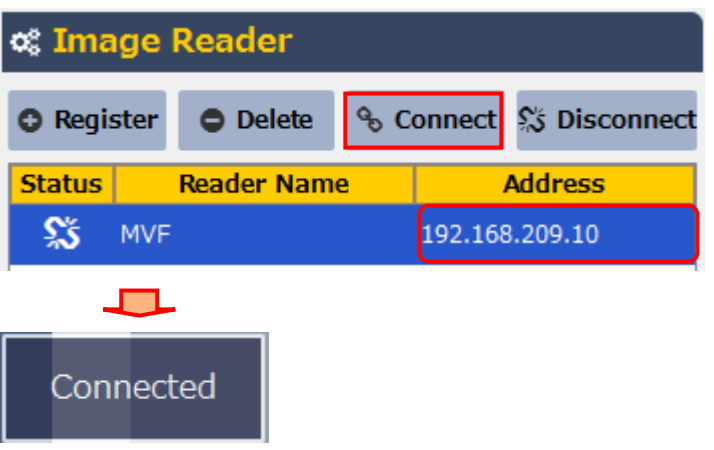
The following panes are used to explain the parameter settings and the initialization settings in this guide.

Left: Image Reader and Main Configuration Pane
Right: Configuration Sub-Pane



(Detail configuration)
- 6 Check that 192.168.209.10 is displayed in the *Address* Column of Image Reader in the Image Reader and Main configuration Pane.
Click **Connect**.

The message on the right is displayed after Personal computer and Image Reader are connected normally.



- 7 The dialog box on the right is displayed. Check the contents and click **Yes**.

Load configuration from the scanner?

Yes


No

The message on the right is displayed after the configuration is read.

Read configuration done


- 8 The  mark (connection status) is displayed in the *Status* Column of Image Reader. Click **Common**.


 **Image Reader**

 Register

 Delete


 Connect

 Disconnect

Status	Reader Name	Address
	MVF	192.168.209.10

 Common

- 9 The configuration settings listed in Common are displayed. Click **Communication**.

 Image Reader

 **Common**

▷ Communication

▷ Read Operation

▷ Image Settings

▷ Output Settings

▷ Preset

▷ LAN

▷ PLC

- 10 The configuration items of Communication are displayed.
Select the following values.

Baudrate: **9600bps**

Frame: **8N1**

RS/CS: **OFF**

Select Port: **RS-232C**

Image Reader - MVF

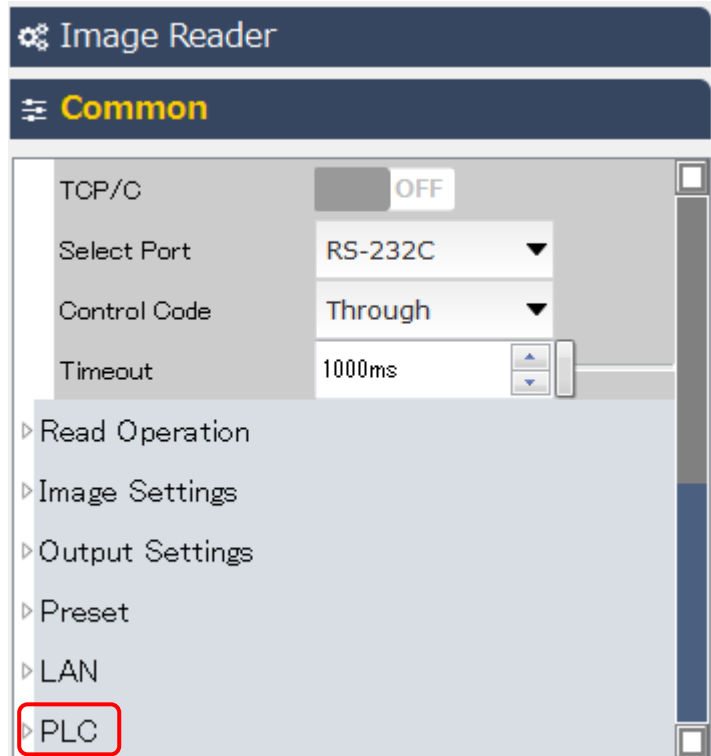
Common

Communication

Baudrate	9600bps
Frame	8N1
Header	None
Terminator	CR
Command Format	CMD+CR
Separator	,
Prefix	OFF
PrefixChar	[NUL]
Suffix	OFF
Suffix Char	[NUL]
RS/CS	OFF
TCP/C	OFF
Select Port	RS-232C
Control Code	Through
Timeout	1000ms

Read Operation

11 Click **PLC** listed in Common.



12 The configuration items of PLC are displayed.

Select the following values.

Address: 1000

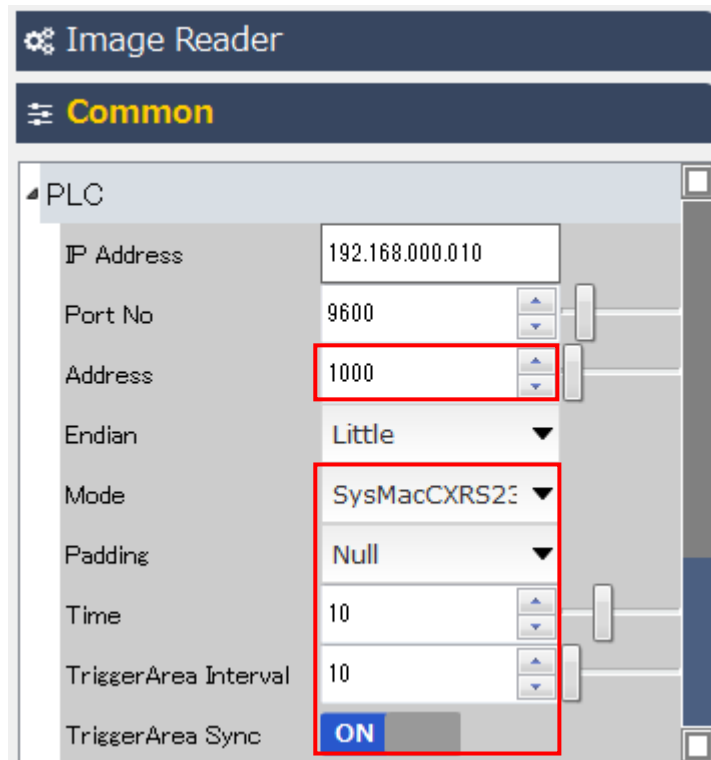
Mode: **SysMacCXRS232C**

Padding: **Null**

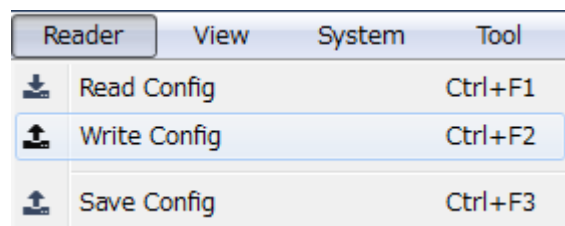
Time: 10

Trigger Area Interval: 10

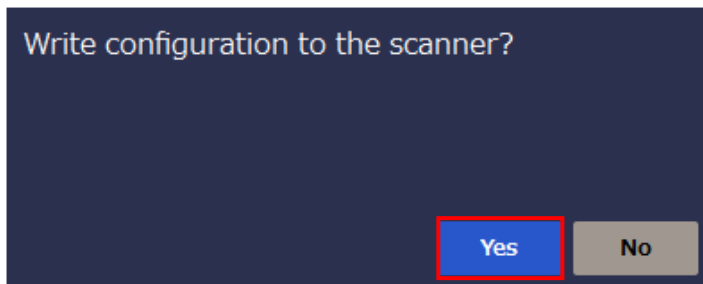
Trigger Area Sync: **ON**



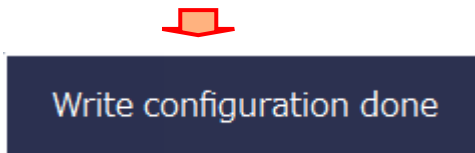
13 Select **Write Config** from the Reader Menu.



- 14 The dialog box on the right is displayed. Check the contents and click **Yes**.

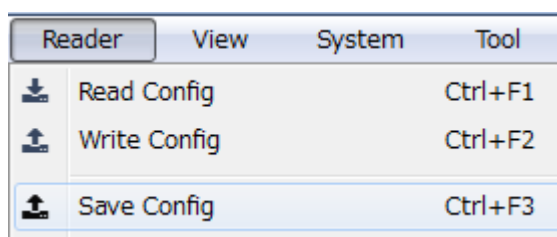


The message on the right is displayed after the configuration is written.

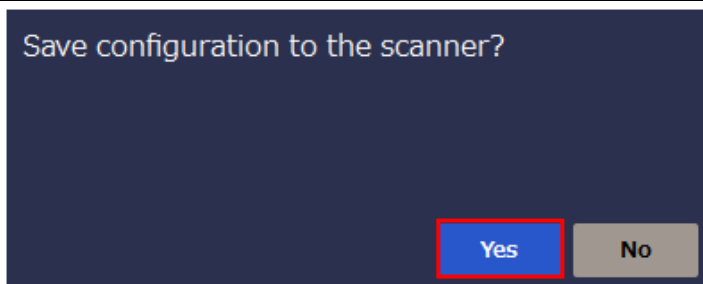


- 15 Select **Save Config** from the Reader Menu.

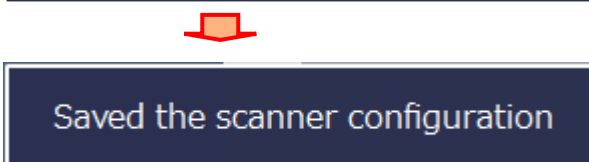
*If you do not save the configuration, the data configured on Image Reader are not stored in the non-volatile memory of Image Reader, and they will be discarded when you turn OFF Power Supply Unit.



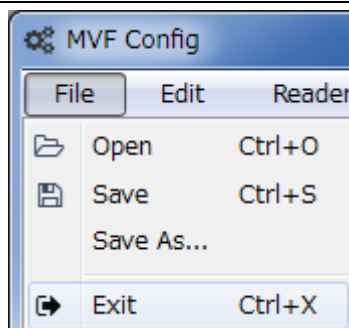
- 16 The dialog box on the right is displayed. Check the contents and click **Yes**.



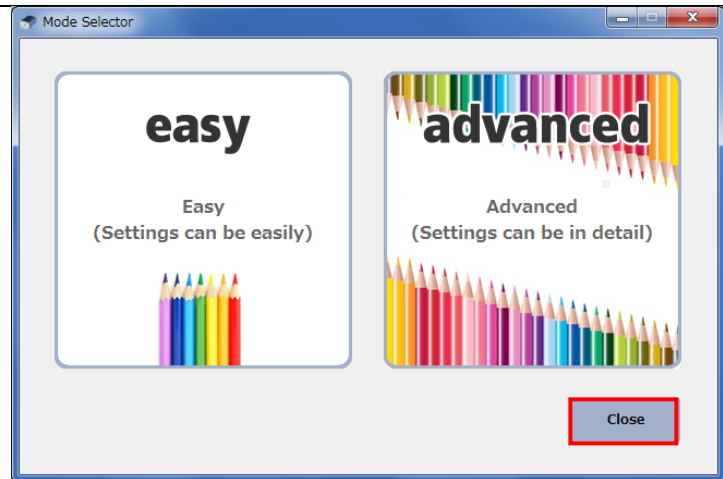
The message on the right is displayed after the configuration is saved.



- 17 Select **Exit** from the File Menu to close the MVF Config Window.



- 18 Click **Close** in the Mode Selector Window.



- 19 Turn OFF Power Supply Unit.

*After PLC is connected to Image Reader in 7.3. *PLC Setup*, turn ON the power supply again.

7.3. PLC Setup

Set up the PLC.

7.3.1. Hardware Settings

Set the hardware switches on the Serial Communications Unit and connect the cables.



Precautions for Correct Use

Make sure that the power supply is OFF when you set up.


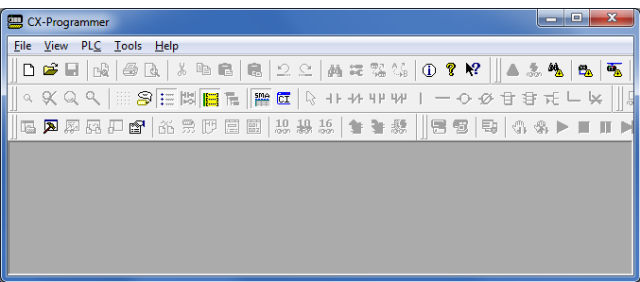
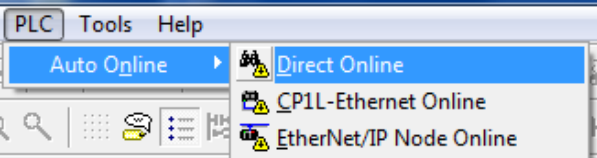
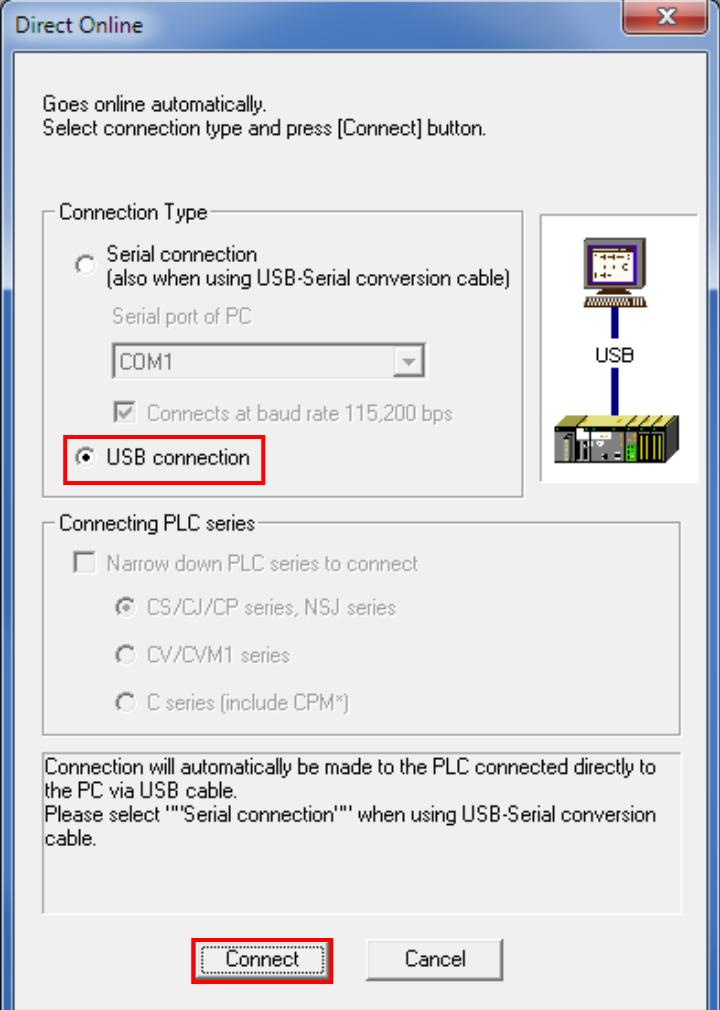
If it is ON, the settings described in the following steps and subsequent procedures may not be applicable.

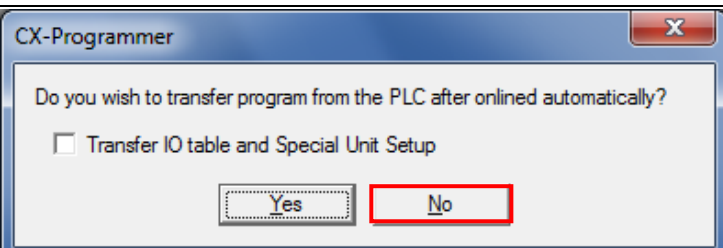
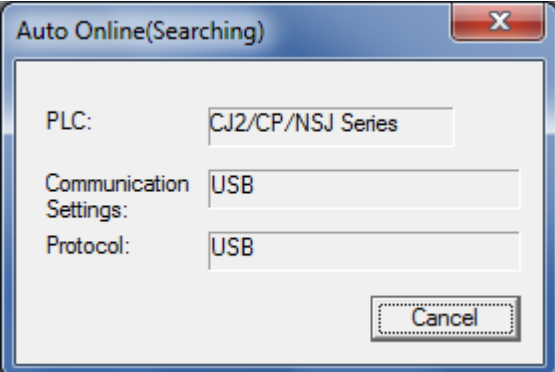

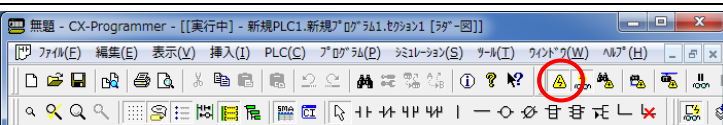
1	Make sure that PLC is powered OFF.	
2	Check the positions of the hardware switches and Port 2 on the front panel of Serial Communications Unit by referring to the figure on the right	
3	Set Unit number switch to 0. *The unit number is set to 0 as the factory default setting.	
4	<p>Connect Serial Communications Unit to PLC as shown on the right.</p> <p>Connect Power Supply Unit to Port 2 on Serial Communications Unit with the Serial cable (RS-232C).</p> <p>Connect Personal computer to PLC with a USB cable.</p>	
5	Turn ON PLC and Power Supply Unit.	

7.3.2. Starting CX-Programmer and Going Online with PLC

Start CX-Programmer and go online with the PLC.

Install CX-One and the USB driver on your personal computer beforehand.

1	<p>Start CX-Programmer.</p> <p>*If the User Account Control Dialog Box is displayed at start, make a selection to start CX-Programmer.</p>	
2	<p>CX-Programmer starts.</p>	
3	<p>Select Auto Online - Direct Online from the PLC Menu.</p>	
4	<p>The Direct Online Dialog Box is displayed.</p> <p>Select <i>USB connection</i> as the connection type.</p> <p>Click Connect.</p>	

<p>5 The dialog box on the right is displayed. Check the contents and click No.</p>	
<p>6 The dialog box on the right is displayed. CX-Programmer and PLC are automatically connected.</p>	
<p>7 Check that CX-Programmer and PLC are online.</p> <p>*The  icon is pressed down during online connection.</p>	



Additional Information

If the online connection to the PLC cannot be established, check the cable connection.
Or, return to step 1, check the settings and repeat each step.
For details, refer to *Connecting Directly to a CJ2 CPU Unit Using a USB Cable* of the *CX-Programmer OPERATION MANUAL* (Cat. No. W446).



Additional Information

The dialog boxes described in subsequent procedures may not be displayed depending on the environmental settings of CX-Programmer.
For details on the environmental settings, refer to *Options and Preferences* in *CHAPTER 3 Project Reference* in *PART 1: CX-Programmer* of the *CX-Programmer OPERATION MANUAL* (Cat. No. W446). This guide explains the setting procedures when "Confirm all operations affecting the PLC" is selected.

7.3.3. Creating the I/O Table

Create the I/O table for the PLC.

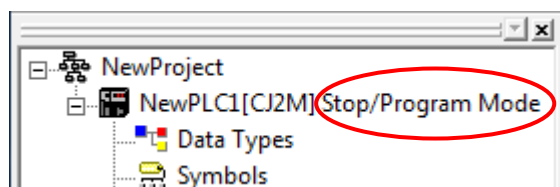
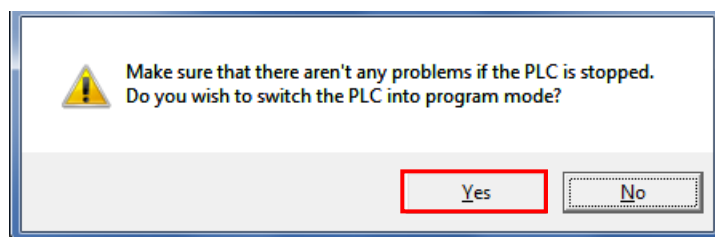
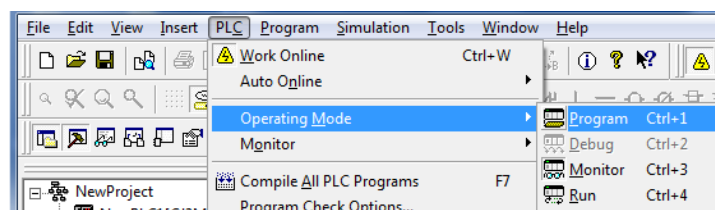
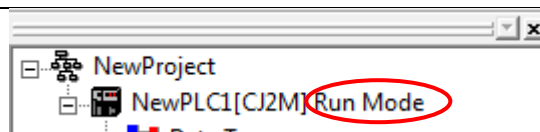
- 1 If the operating mode of PLC is Run Mode or Monitor Mode, change it to Program Mode by following the steps below.

(1) Select **Operating Mode - Program** from the PLC Menu in CX-Programmer.

(2) The dialog box on the right is displayed. Confirm that there is no problem, and click **Yes**.

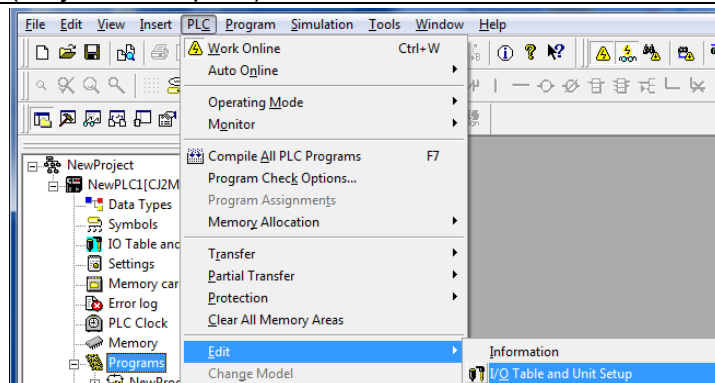
*Refer to *Additional Information* on the previous page for the settings concerning the dialog display.

(3) Check that Stop/Program Mode is displayed to the right of the PLC model in the Project Workspace of CX-Programmer.

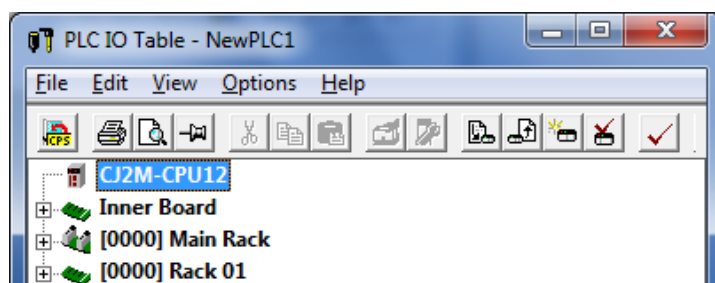


(Project Workspace)

- 2 Select **Edit - I/O Table and Unit Setup** from the PLC Menu in CX-Programmer.



The PLC IO Table Window is displayed.

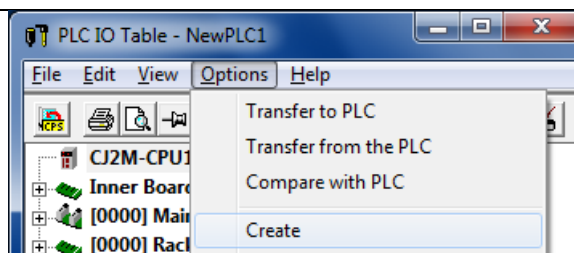




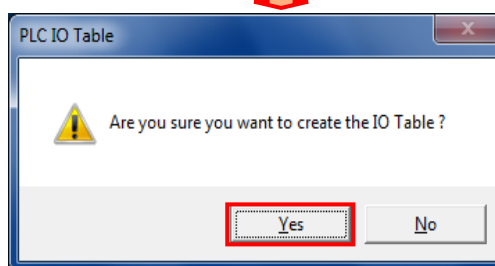
Precautions for Correct Use

The PLC will be reset after creating and transferring the I/O table in step 3 and subsequent steps. Always confirm safety before creating and transferring the I/O table.

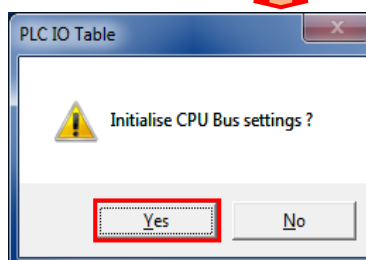
- 3 Select **Create** from the Options Menu of the PLC IO Table Window.



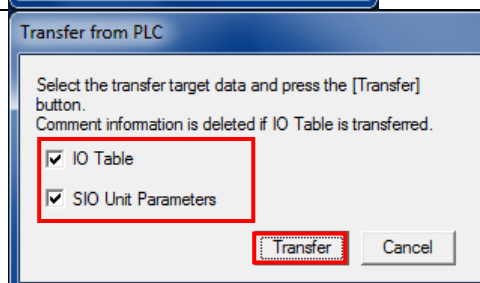
The dialog box on the right is displayed. Confirm that there is no problem, and click **Yes**.



The dialog box on the right is displayed. Confirm that there is no problem, and click **Yes**.



- 4 The Transfer from PLC Dialog Box is displayed. Select *IO Table* and *SIO Unit Parameters*. Click **Transfer**.



When the transfer is completed, the Transfer Results Dialog Box is displayed.

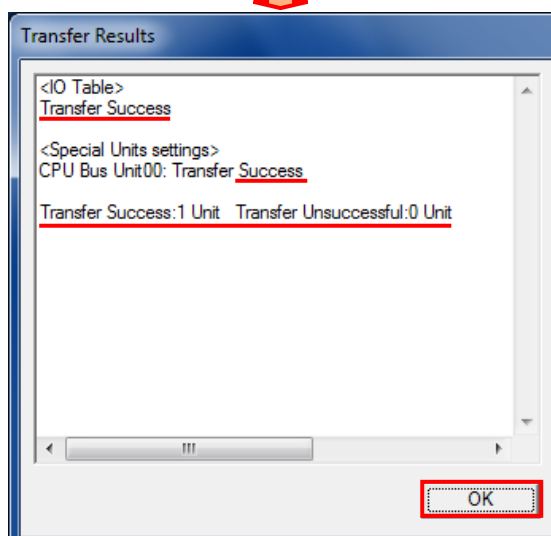
Check that the transfer is successfully completed by referring to a message in the dialog box.

When the I/O table is created normally, the dialog box displays as follows:

Transfer Success: 1 Unit

Transfer Unsuccessful: 0 Unit

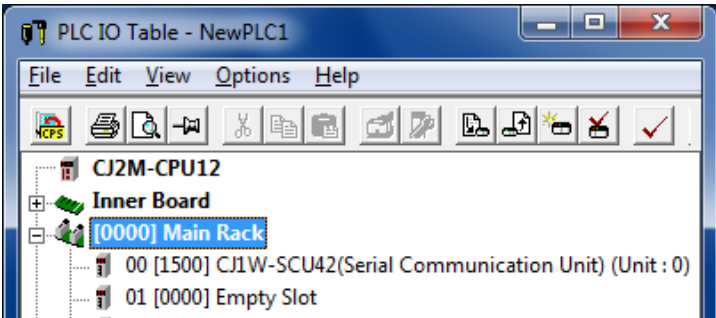
Click **OK**.

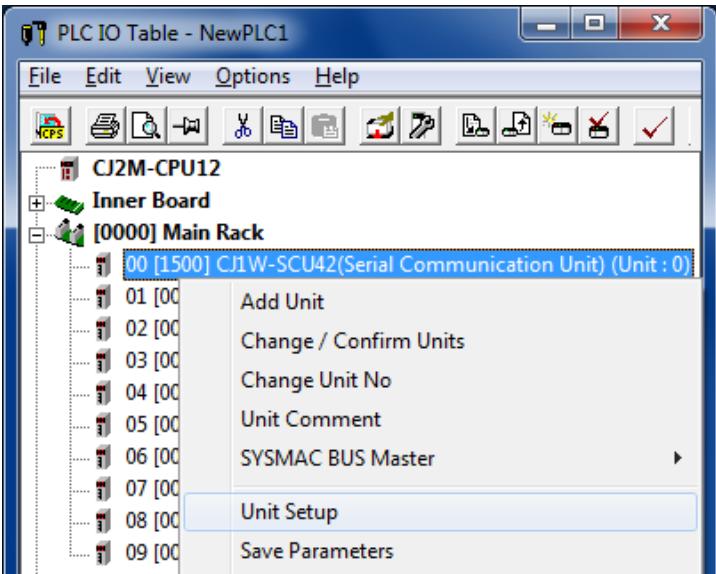


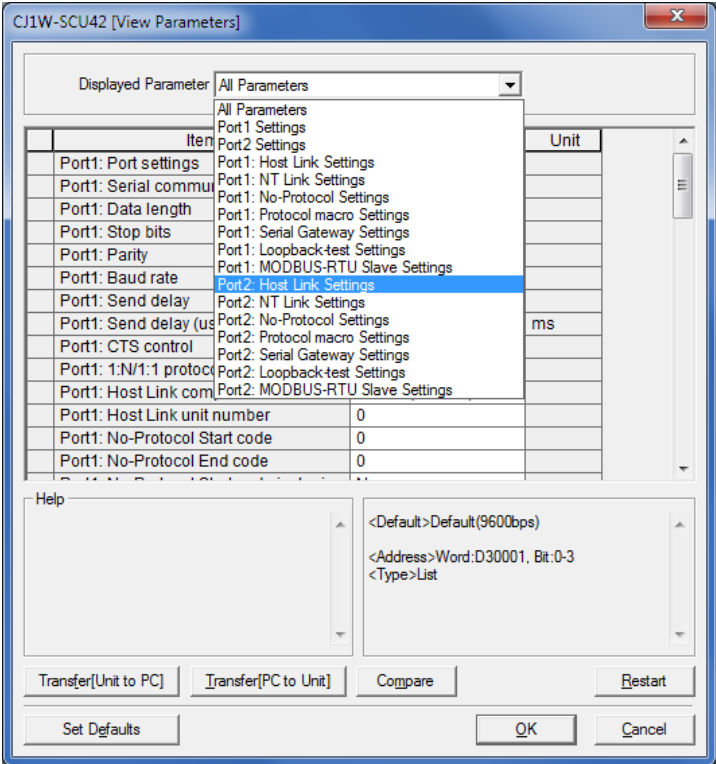
7.3.4. Parameter Settings

Set the parameters for the Serial Communications Unit.

- 1 Double-click **[0000] Main Rack** in the PLC IO Table Window to expand the tree.


- 2 Right-click **00 [1500] CJ1W-SCU42** and select **Unit Setup**.


- 3 The View Parameters Dialog Box is displayed. Select **Port2: Host Link Settings** from the pull-down list of Displayed Parameter.



*This setting is required to use Port 2 of Serial Communications Unit.

- 4 The setting items of “Port2: Host Link Settings” are listed as shown in the figure on the right.

CJ1W-SCU42 [View Parameters]

Displayed Parameter: Port2: Host Link Settings

Item	Set Value	Unit
Port2: Port settings	Defaults	
Port2: Serial communications mode	Host Link(default)	
Port2: Data length	7 bits	
Port2: Stop bits	2 bits	
Port2: Parity	Even	
Port2: Baud rate	Default(9600bps)	
Port2: Send delay	Default (0 ms)	
Port2: Send delay (user-specified)	0	ms
Port2: CTS control	No	
Port2: 1:N/1:1 protocol setting	1:N protocol	
Port2: Host Link compatible device mo	Default(Mode A)	
Port2: Host Link unit number	0	

- 5 Select **User settings** from the pull-down list of Set Value for “Port2: Port Settings”.

CJ1W-SCU42 [View Parameters]

Displayed Parameter: Port2: Host Link Settings

Item	Set Value	Unit
Port2: Port settings	User settings	
Port2: Serial communications mode	Defaults	
Port2: Data length	User settings	
Port2: Stop bits	2 bits	
Port2: Parity	Even	
Port2: Baud rate	Default(9600bps)	
Port2: Send delay	Default (0 ms)	
Port2: Send delay (user-specified)	0	ms
Port2: CTS control	No	
Port2: 1:N/1:1 protocol setting	1:N protocol	
Port2: Host Link compatible device mo	Default(Mode A)	
Port2: Host Link unit number	0	

- 6 Set the following parameters in the same way as step 5.

Serial communications mode:

Host Link(default)

Data length: **8 bits**

Stop bits: **1bit**

Parity: **None**

Baud rate: **Default(9600bps)**

CTS control: **No**

1:N/1:1 protocol setting:

1:1 protocol

*Use the default settings for other parameters.

Click **Transfer[PC to Unit]**.

CJ1W-SCU42 [View Parameters]

Displayed Parameter: Port2: Host Link Settings

Item	Set Value	Unit
Port2: Port settings	User settings	
Port2: Serial communications mode	Host Link(default)	
Port2: Data length	8 bits	
Port2: Stop bits	1 bit	
Port2: Parity	None	
Port2: Baud rate	Default(9600bps)	
Port2: Send delay	Default (0 ms)	
Port2: Send delay (user-specified)	0	ms
Port2: CTS control	No	
Port2: 1:N/1:1 protocol setting	1:1 protocol	
Port2: Host Link compatible device mo	Default(Mode A)	
Port2: Host Link unit number	0	

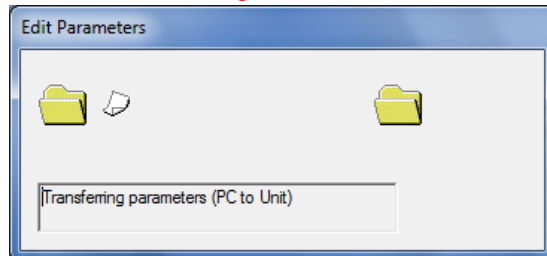
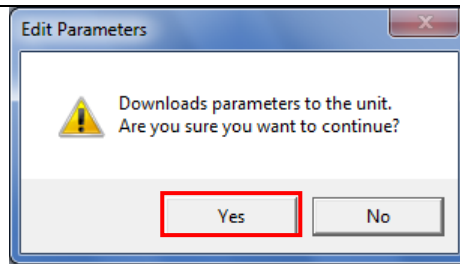
Help

<Default>Defaults
<Address>Word:D30010, Bit:15
<Type>List

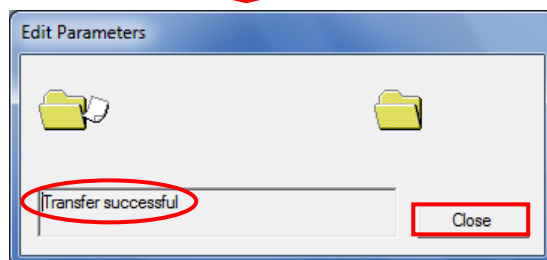
Transfer[Unit to PC] **Transfer[PC to Unit]** Compare Restart

Set Defaults OK Cancel

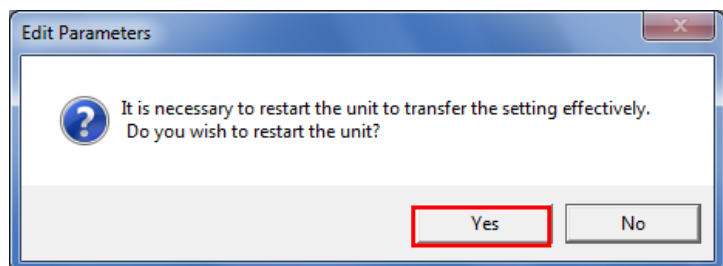
- 7 The dialog box on the right is displayed. Confirm that there is no problem, and click **Yes**.



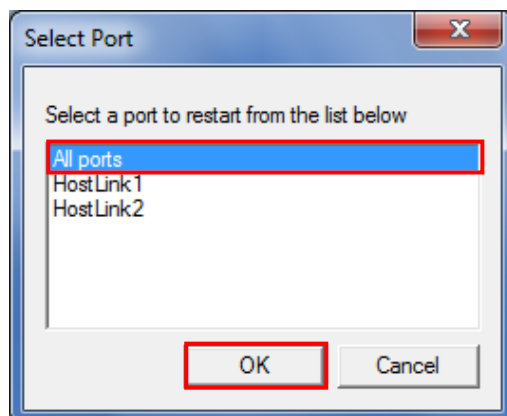
Check that the transfer is completed as shown on the right. Click **Close**.



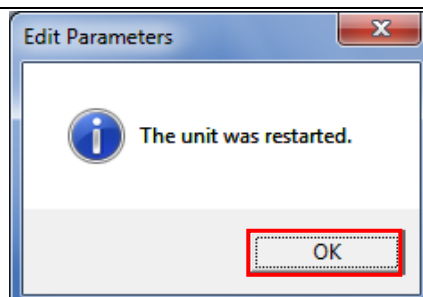
- 8 The dialog box on the right is displayed. Check the contents and click **Yes**.



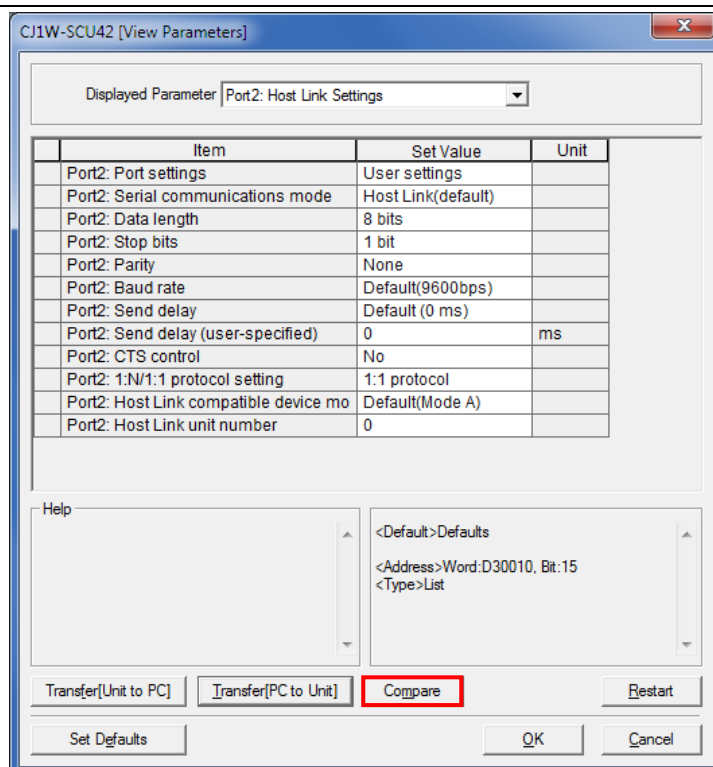
The Select Port Dialog Box is displayed.
Select *All ports* and click **OK**.



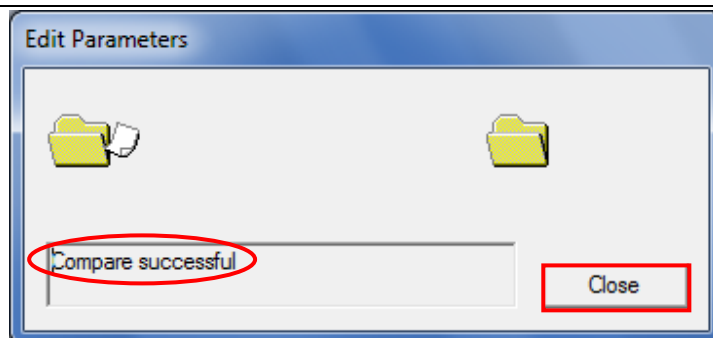
- 9 The dialog box on the right is displayed. Check the contents and click **OK**.



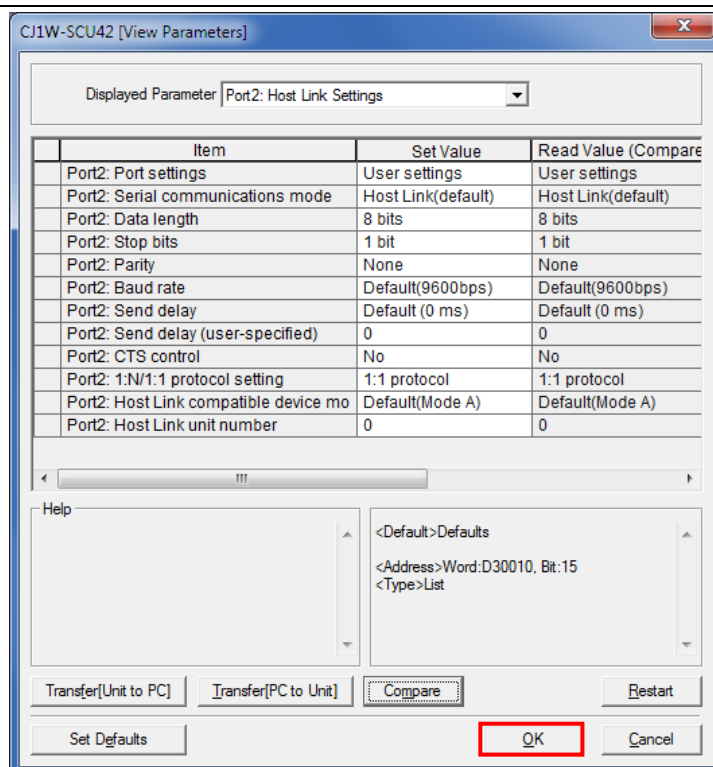
- 10 Click **Compare** in the View Parameters Dialog Box.



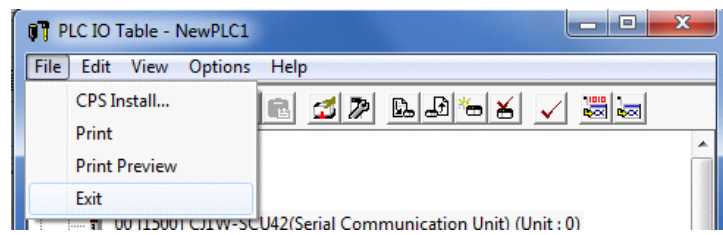
- 11 Check that a message stating "Compare successful" is displayed in the dialog box on the right.
Click **Close**.



- 12 Click **OK** in the View Parameters Dialog Box.



- 13 Select **Exit** from the File Menu of the PLC IO Table Window to close.



7.4. Serial Communication Status Check

Confirm that serial communications and PLC link for Image Readers perform normally.

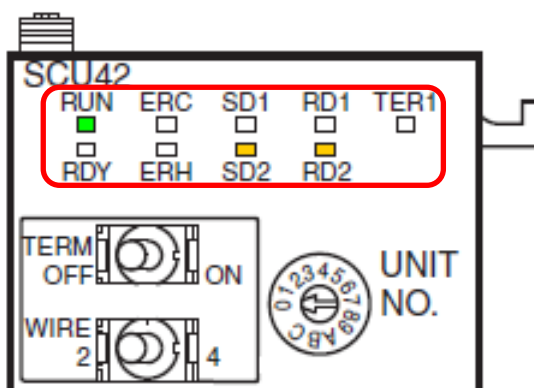
7.4.1. Checking the Connection Status

Check the connection status of serial communications.

- 1 Check with LED indicators on Serial Communications Unit that serial communications performs normally.

The LED indicators in normal status are as follows:

RUN: Green lit
 RDY: Not lit
 ERC: Not lit
 ERH: Not lit
 SD1: Not lit
 SD2: Not lit
 TER1: Not lit
 SD2: Yellow flashing
 RD2: Yellow flashing



7.4.2. Checking the Sent and Received Data

Check that the correct data are sent and received using PLC link for Image Readers.

Caution

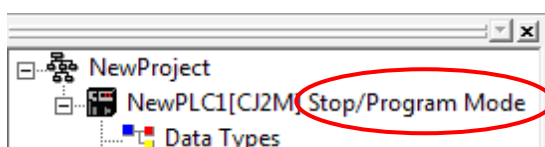
Always ensure safety before monitoring power flow and present value status in the Ladder Section Window or when monitoring present values in the Watch Window.

If force-set/reset or set/reset operations are inadvertently performed by pressing short-cut keys, the devices connected to Output Units may malfunction, regardless of the operating mode of the CPU Unit.

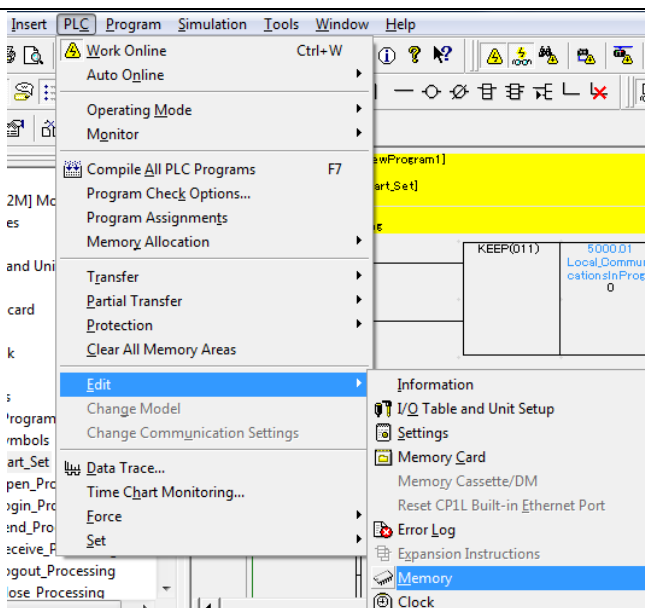


- 1 Check that the operating mode of PLC is Stop/Program Mode.

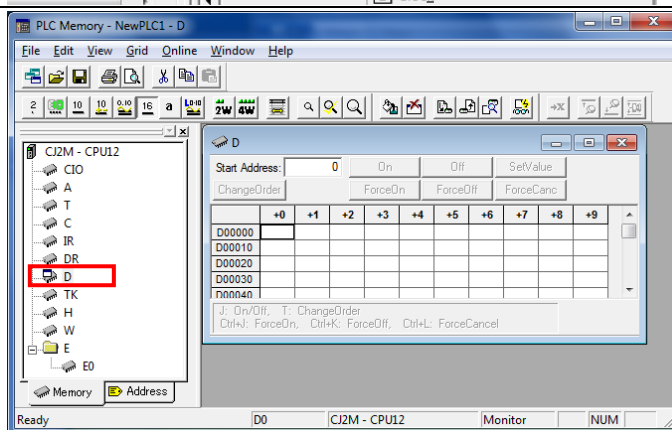
*If the operating mode of PLC is not Stop/Program Mode, change to Stop/Program Mode by referring to step 1 of 7.3.3. Creating the I/O Table.



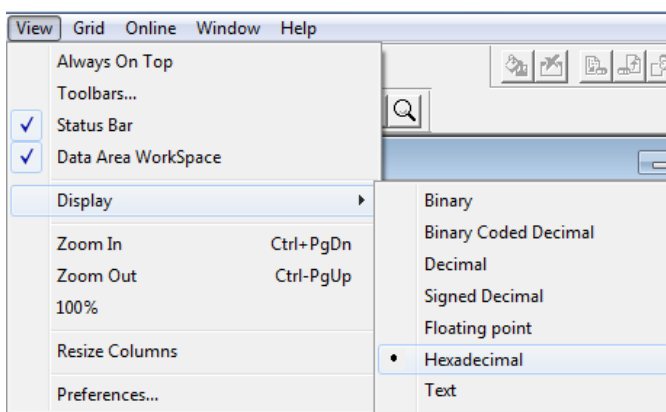
- 2 Select **Edit - Memory** from the PLC Menu.



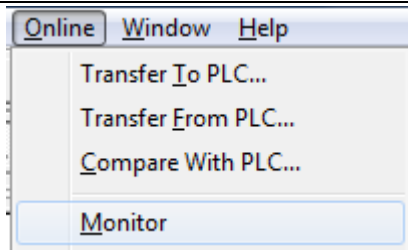
- 3 The PLC Memory Window is displayed. Double-click **D** on the Memory Tab of the PLC Memory Window.



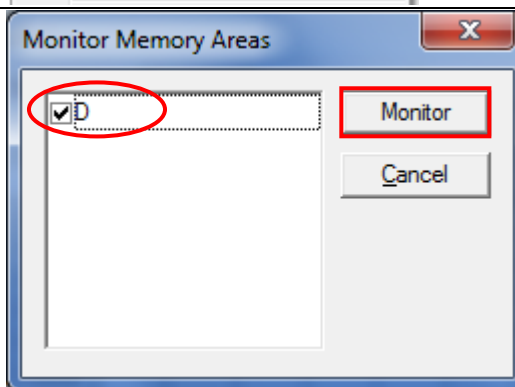
- 4 Select **Display - Hexadecimal** from the View Menu.



- 5 Select **Monitor** from the Online Menu.

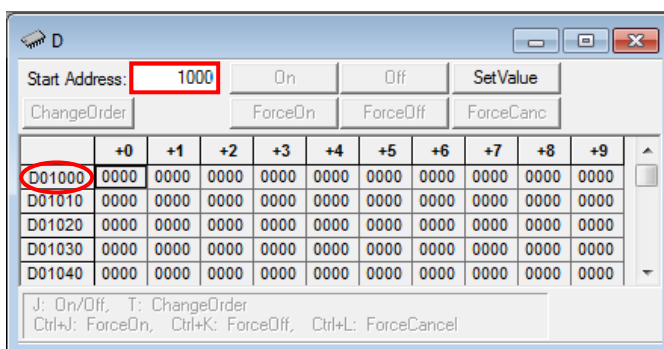


- 6 The Monitor Memory Areas Dialog Box is displayed. Check that D is selected. Click **Monitor**.



- 7 Enter 1000 in the Start Address Field of the D Window.


Check that the start address changes to D01000.



8 Click **SetValue**.

Start Address:	1000	On	Off	SetValue
ChangeOrder		ForceOn	ForceOff	ForceCanc

The Set Value: Hexadecimal Dialog Box is displayed.



Set Value: Hexadecimal

Value:

Range: 0 to FFFF

OK Cancel


9 Place Image Reader at the position where it is able to read the 2D code "ABCDE12345" (ASCII code) shown on the right.



"ABCDE12345" (ASCII code)

10 Enter 1 in the *Value* Field of the Set Value: Hexadecimal Dialog Box.

Click **OK**.



Set Value: Hexadecimal

Value:

Range: 0 to FFFF

OK Cancel

The value of D01000 changes to 0001.

	+0	+1	+2	+3
D01 000	0001	0000	0000	0000
D01 01 0	0000	0000	0000	0000

*The Image Reader starts reading the 2D code.

- 11 One short buzzer of Image Reader rings when the 2D code reading is completed.

*If Image Reader is unable to read the 2D code, check the cable connection and the position where Image Reader is placed to read the code, and perform steps 9 and 10 again.

For details, refer to 10.

Troubleshooting of the Operation Manual MVF-300 Series Fixed mount 2D Image Reader^{3rd} Edition.

- 12 The value of D01000 changes to 0000.
The number of digits of read data is stored in D01009, and the read data are stored in D01010 onward, as shown below.

The number of digits of read data:

000A (10 digits)

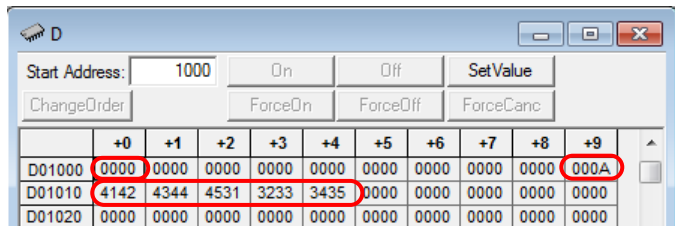
Read data:

4142 4344 4531 3233 3435

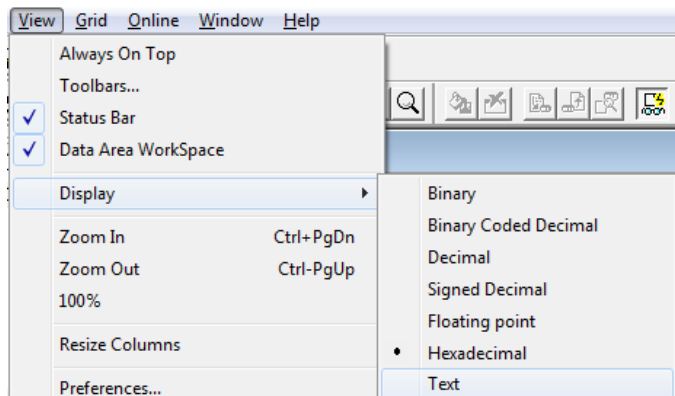
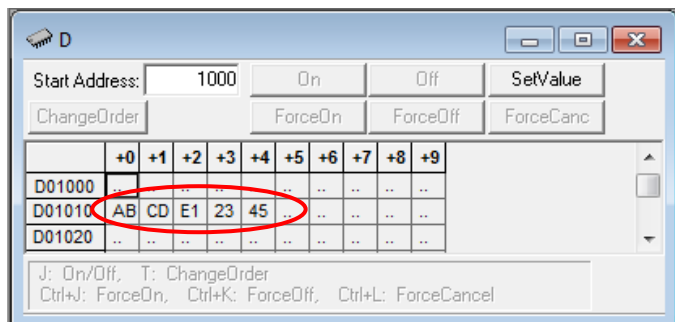
Select **Display - Text** from the View Menu, to display the read data in text format.

The following read data are displayed, which indicate that the 2D code has correctly been read in step 9.

Read data: AB CD E1 23 45



	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
D01000	0000	0000	0000	0000	0000	0000	0000	0000	0000	000A
D01010	4142	4344	4531	3233	3435	0000	0000	0000	0000	0000
D01020	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000

	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
D01000	..	..	..	..	..	..	..	..	..	..
D01010	AB	CD	E1	23	45	..	..	..	..	..
D01020	..	..	..	..	..	..	..	..	..	..

J: On/Off, T: ChangeOrder
Ctrl+J: ForceOn, Ctrl+K: ForceOff, Ctrl+L: ForceCancel

8. Initialization method

The setting procedures in this guide are based on the factory default settings.

Some settings may not be applicable unless you use the devices with the factory default settings.

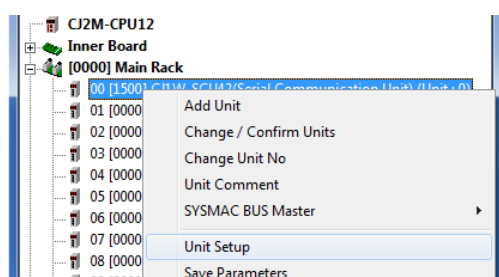
8.1. Initializing a PLC

To initialize a PLC, it is necessary to initialize a Serial Communications Unit and a CPU Unit. Change the operating mode of the PLC to PROGRAM mode before the initialization.

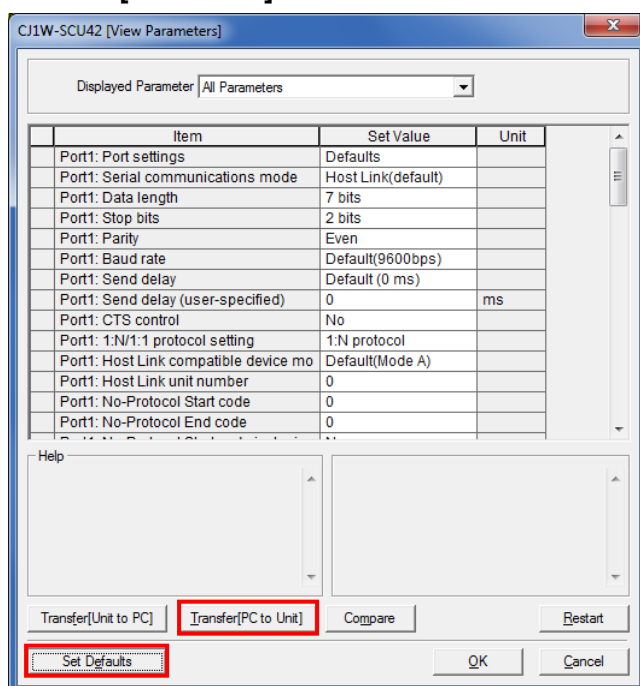
8.1.1. Serial Communications Unit

To initialize a Serial Communications Unit, select **Edit - I/O Table and Unit Setup** from the PLC Menu in CX-Programmer and perform the following steps.

- (1) Right-click Serial Communications Unit in the PLC IO Table Window and select **Unit Setup** from the menu.

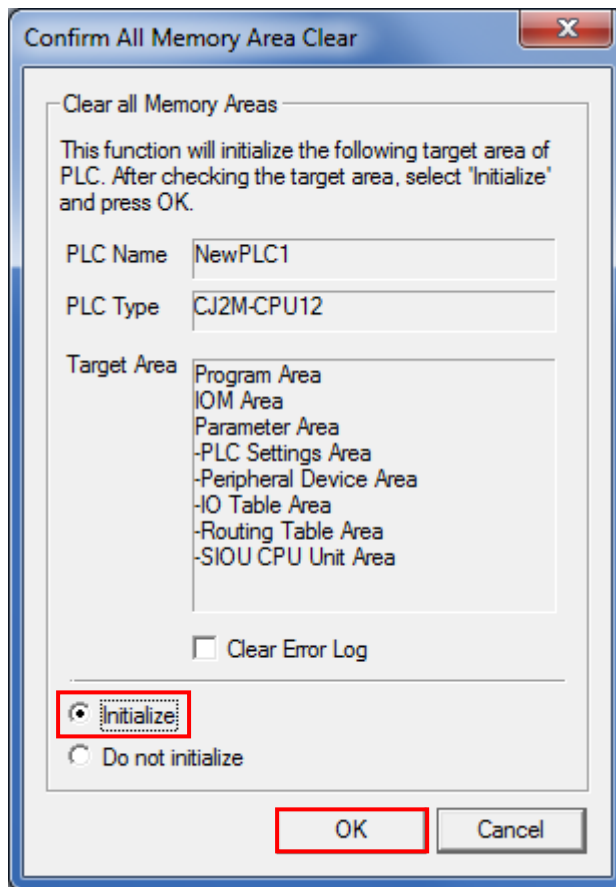


- (2) In the CJ1W-SCU42 [View Parameters] Dialog Box, click **Set Defaults** first, then click **Transfer[PC to Unit]**.





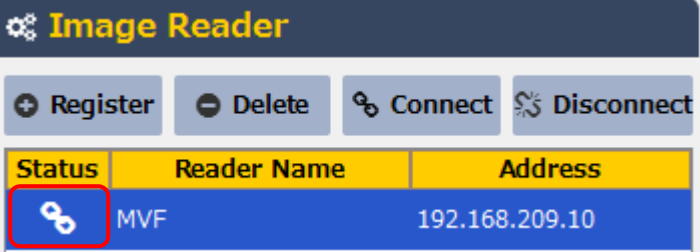
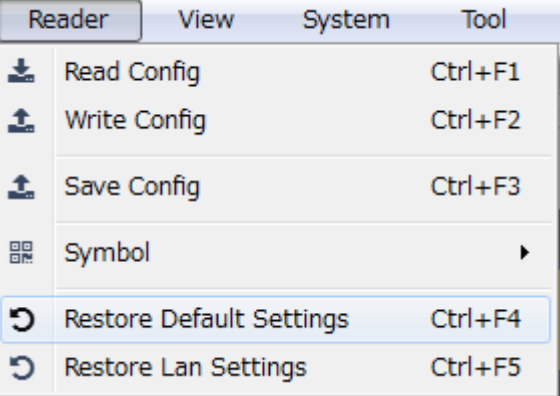
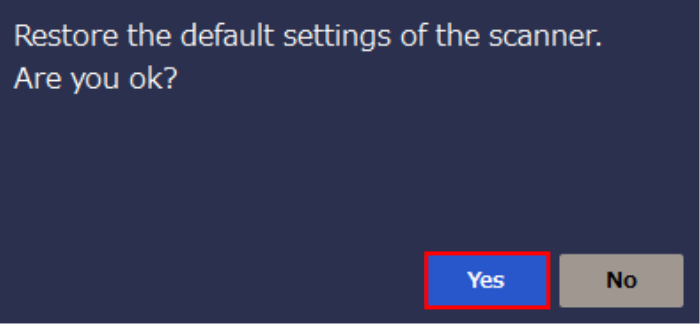
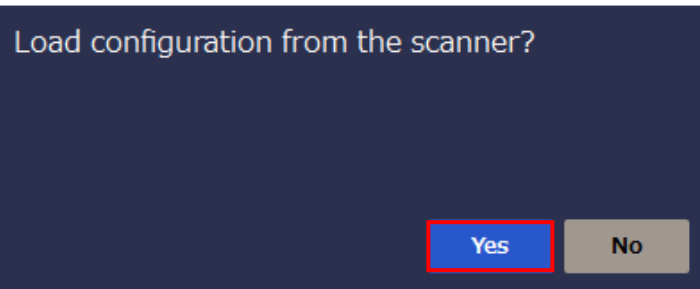
8.1.2. CPU Unit

To initialize a CPU Unit, select **Clear All Memory Areas** from the PLC Menu in CX-Programmer. Select *Initialize* in the Confirm All Memory Area Clear Dialog Box and click **OK**.



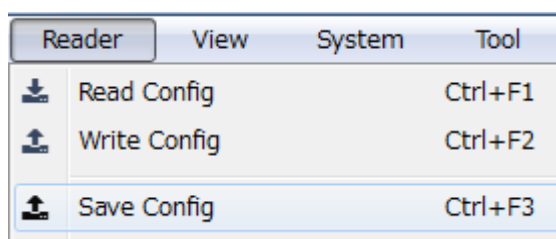
8.2. Initializing a MARS TOHKEN SOLUTION Image Reader

Take the following steps to initialize a MARS TOHKEN SOLUTION Image Reader.

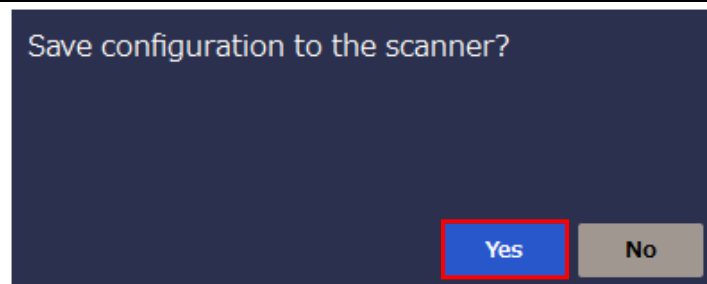
1	Connect Image Reader to Power Supply Unit with the Image reader cable and Image Reader to Personal computer with the LAN cable for MVF series.	
2	Turn ON Power Supply Unit.	
3	Start MVFConfig on Personal computer.	
4	Perform steps 4 to 7 in 7.2.2. <i>Parameter Settings</i> . Check that the  mark (connection status) is displayed in the <i>Status</i> Column of Image Reader as shown on the right.	
5	Select Restore Default Settings from the Reader Menu.	
6	The dialog box on the right is displayed. Check the contents and click Yes .	
7	The dialog box on the right is displayed. Check the contents and click Yes .	

- 8 Select **Save Config** from the Reader Menu.

*If you do not save the configuration, the data configured on Image Reader are not stored in the non-volatile memory of Image Reader, and they will be discarded when you turn OFF Power Supply Unit.



- 9 The dialog box on the right is displayed. Check the contents and click **Yes**.

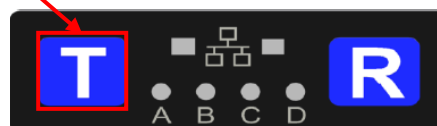


Additional Information

If the IP address of the Image Reader is unknown, first take the following steps to initialize the LAN settings of the Image Reader, then perform initialization of the Image Reader as described in this *Clause 8.2*.

1. Turn OFF Power Supply Unit.
2. Turn ON Power Supply Unit while pressing the **Teach** Key on the operation panel of Image Reader.

Teach Key



Operation panel of Image Reader

9. Revision History

Revision code	Date of revision	Description of revision
01	May 11, 2017	First edition

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