# 13 Writing CSV File Data in Device/PLC

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# 13.1 Try to Write CSV File Data in Device/PLC

#### [Action Example]

Detect the rising of the device (bit device: "M01") of Device/PLC and write the first column data of a CSV file on PC into the devices (word device: address "D50" to "D54") of Device/PLC.



This section describes the setting procedures for executing the above action (ACTION) as an example.

#### [Setting Procedure]

1	Creating a CSV Data File (Recipe)	This step creates a CSV data file containing a recipe to write in a Device/PLC device.
2	Starting 'Pro-Studio EX'	This step starts 'Pro-Studio EX'.
3	Registering Entry Nodes	This step registers the PC and the GPs as entry nodes.
4	Registering Symbols	This step registers as a symbol the device of Device/ PLC which serves as a trigger condition (trigger) and also a data write destination.
5	Parameter Setting for Feature (ACTION)	This step sets the following items: Write Destination Readout File Readout Detail Settings
6	Setting Trigger Conditions	This step sets conditions (trigger) for executing data write.
7	Setting Data Received by ACTION	This step sets the device of Device/PLC where data is written.
8	Setting ACTION Node/Process Completion Notification	This step sets the name of an ACTION node and the alert setting whether it should be tuned on or off when the ACTION is completed.
9	Verifying Setting Result	This step verifies setting results on the setting content list screen.
10	Saving a Network Project File	This step saves the current settings as a network project file and reloads.
11	Transferring a Network Project File	This step transfers a saved network project file to the GP.
12	Executing ACTION	This step verifies that CSV file data is written in the device of Device/PLC when the preset trigger condition has become effective.

# 13.1.1 Creating a CSV Data File (Recipe)

1 Create a recipe sheet.

[Creation Example]

 $2\,$  Save it on PC desktop with the file name "CSVdata.csv" after creating.

#### 13.1.2 Starting 'Pro-Studio EX'

This step starts 'Pro-Studio EX'.

Refer to "3 Trial of Pro-Server EX" for details about starting method.

## 13.1.3 Registering Entry Nodes

This step registers the PC and the GP connected with network as nodes. Refer to "31 Node Registration" for details about entry nodes.

Node Name	:PC1
IP Address	:192.168.0.1



Node Name	:AGP1
IP Address	:192.168.0.100

Device/PLC Information



Entry Node	Setting item	Setting example	
PC	Node Name	PC1	
	IP Address	192.168.0.1	
	Туре	GP3000 series	
GP	Node Name	AGP1	
	IP Address	192.168.0.100	

# 13.1.4 Registering Symbols

This step registers as a symbol the device of Device/PLC which serves as a trigger condition (trigger) and also a data write destination.

Refer to "32 Symbol Registration" for details about entry nodes.





Setting item	Trigger (Trigger Condition)	Writing Device	
Symbol Name	Start writing	PLC1 data	
Data Type	Bit	16Bit (Signed)	
Device address for symbol registration	"M01" of Device/PLC (PLC1)	"D50" to "D54" of Device/PLC (PLC1)	
No. of Devices	1	5	

# 13.1.5 Parameter Setting for Feature (ACTION)

This step makes settings to write CSV file data in the device of Device/PLC. (parameter settings) Refer to "13.2 Setting Guide" for more details about ACTION parameter.





Setting item		Setting content
ACTION Name		CSV download
	Node Name	AGP1
Write Destination	Device Name	PLC1 data
	Data Type	16bit (Signed)
	Readout File Name	CSVdata.csv
Readout File	Readout Method	All the Column
	Start Column	1
	No. of Columns	1

1 Click the [Feature] icon on the status bar.

饕 Pro-Studio EX 💡	.npx	
File Edit Tool Pro	gramming Assist Sett	ing Help
Start >	Node >	Symbol Symbol Save 2
Symbol		Node Name AGP1 Device Name
Group	Ungroup	Sheet Name Sheet3 🔲 Set it as a glob
Insert	Delete	

2 Select [ACTION] from the tree display on the left of the screen, then click the [Add] button.

饕 Pro-S	tudio E	X t	est.npx				
File Edit	Tool	Pro	grammin	g Assist	Setti	ing He	lp
	Start	<b>&gt;&gt;</b>		Node	<b>»</b>	$\triangleright$	Symbol .
	dd Lt		impo Dele			ł	ACTION
- • <sup>-</sup>	ACTION Frigger ( Data Tra Device (	Condi ansfei	r			u u	n addition t ising applic ising Acce: n the Pro-S

 ${\bf 3}$  Click the [ACTION Type] list button, and select "Writes Data from CSV file".

Then, enter the name of ACTION to set in the [ACTION Name] field. In this example, enter "CSV Download".

Set ACTION Name/Parameter	×
Add a new ACTION. Specify an ACTION name, and set its parameter.	
ACTION Type Create form using Excel.	•
Create form using Excel. Writes Data to CSV file	-
ACTION Name Writes Data from CSV file. Upload of GP JPEG Data.	$\mathbf{D}$
Upload to the Log Data. Writes Data to E-Mail. Upload to the database. Download from the database.	-
Next Cancel	

4 Click the [Click here to set the ACTION parameter] button.

		is Data from CSV file. isplay the Actions of the old version of Pro-Server	•
ACTION Name			
Click here to set the ACTION parameter.			$\bigcirc$

- **5** Make settings regarding the data write destination (device of Device/PLC).
  - Enter the node name "AGP1" in [Node Name] for the data write destination. Also, click the [Data Type] list button, and select "16Bit(Signed)" as the data type of "PLC1 data".

Detail Configuration			
Destination Configural	tion	EX Version 1.00	
Node Name	AGP1	OK	
Device Name	PLC1data	Cancel	
Data Type	Bit		
	-Bit		
Readout File	16Bit(Signed)		
Readout File Name	16Bit(HEX) 16Bit(BCD)		
Readout Method	32Bit(Signed) 32Bit(Unsigned) 32Bit(HEX)		

- Enter the node name and device name in the text box. You can directly enter the symbol name or device address in [Device Name].
  - When you specify the device address of GP3000 Series Nodes and WinGP Nodes, specify the device name together.

(Example) [PLC1]D0100 [#INTERNAL]LS0200 etc.

- When you copy & paste the symbol name from the symbol sheet, copy the symbol name in the [Edit Symbol] dialog box by Ctrl + C.
- If you enter a symbol name in [Device Name], add the Device/PLC name before the symbol name. (Example) If the symbol name is registered as "MEM1000", enter "[#MEMLINK]MEM1000" in [Device Name].

- **6** Make settings regarding the CSV file from which data is read out.
  - Click the [Reference] button of [Readout File Name] and, on the "Select File" screen, specify the CSV file "CSVdata.csv" to read data from, .
  - 2) Click the list button of [Readout Method] and select "All the Column".

Readout File	
Readout File Name	C:\Documents and Settings\Administre Reference
Readout Method	All the Row
Readout Detail Configuration     Start Row     Start Position	All the Row From the Middle to the Last of a Row Number of readouts from the middle of a row All the Column From the Middle to the Last of a Column Number of readouts from the middle of a column

NOTE

• You can choose a data read out method of CSV files among 6 types.

" Readout Method and Detail Settings"

3) Enter "1" in [Start Row] of [Readout Detail Configuration] and "1" in [Number of Rows].

Readout Detail Configuration		
Start Row	Number of Rows	
Start Position	Number of Readouts	

• Items to set in [Readout Detail Configuration] vary depending on the readout method selected in procedure 2.

" Readout Method and Detail Settings"

7 Click the [OK] button.

This is the end of the feature (ACTION) settings.

#### 13.1.6 Setting Trigger Conditions

This step sets a trigger condition (trigger bit ON) to read out device data. Refer to "33 Trigger Conditions" for details about trigger conditions.



- Trigger Condition Name: Turn on write start bit
- Trigger Condition : When "Start writing" (M01) is ON

1 On the "Set ACTION Name/Parameter" screen, click the [Next] button.

Set ACTION Name/Parameter	×
Add a new ACTION.	
Specify an ACTION name, and set its parameter.	
openity and retreated and each operations.	
	_
ACTION Type Writes Data from CSV file.	-
Display the Actions of the old version of Pro-Server	
ACTION Name CSVDownload	
,	
Click here	1
to set the ACTION parameter.	
	1
Next Cancel	

2 Click the [New Trigger Condition] button.

Set ACTION Trigger Condition	×
ACTION Type Writes Data from CSV file.	
ACTION Name CSVDownload	
Specify a trigger condition of the ACTION.	
Trigger Condition	
New Trigger Condition	
Edit	
Node	

**3** Enter the trigger condition name "TurnOnWriteStartBit" in [Trigger Condition Name], and select "AGP1" in [Node Name] which has the device to serve as the trigger condition (trigger).



4 Click the [When Device ON] button in the [Condition 1] tab and select "PLC1" for the device name.

Condition	1		
Specify t	he Trigger Condition.		
K	When Turned ON	While Device is ON 🙀 While Condition Satisfied	
Ö	Specified Time	While Device is OFF 💦 When Condition Satisfied	
0	Constant Cycle	When Device ON 👫 When Partner Node ON	
	When Device Changes	When Device OFF 🐰 When Partner Node OFF	
Device Name       #INTERNAL     Turn OFF the Specified Device Address after       #INTERNAL     Processing.			
Data Type 16Bit(Signed)			

5 Click the [Device Address] list button and select "WriteStart" for the symbol name of the device which serves as the trigger.

Device Name
PLC1 Interpret Processing.
Device Address
🖬 🔽 🖃 Local:Sheet3
Data Type 16Bit(Signed)
🔲 Limited Time Offer
0 🔹 hour 🛛 😅 min - 🛛 🔹 hou

[Data Type] automatically appears after selection, too.

Device Name
PLC1
Device Address
📰 WriteStart 💌
Data Type Bit
Limited Time Offer

• You can also set trigger conditions by combining 2 different types of conditions ("And" condition or "Or" condition).

"33 Trigger Conditions"

6 Click the [OK] button.

This is the end of trigger condition settings.

# 13.1.7 Setting Data Received by ACTION

This step sets data to transfer in ACTION.

# **Ex.**

- Device Name as Transfer Source: PLC1
- Transfer Destination Device: PLC1 symbol "PLC1 data"

1 On the "Set ACTION Trigger Condition" screen, click the [Next] button.

Set ACTION Trigger Condition
ACTION Type Writes Data from CSV file.
ACTION Name CSVDownload
Specify a trigger condition of the ACTION.
Trigger Condition
New Trigger Condition
TurnOnWriteStartBit Edit
Node AGP1
When WriteStart of Node AGP1 is Turned ON
Back Next Cancel

2 Click the list button of [Device Name] and select "PLC1" for the Device/PLC to which data is written.

Transfer Source
Node
AGP1
Device Name
#INTERNAL
#INTERNAL
PLC1
O Constant Value

**3** Click [Device Address] and then the list button to select "PLC1 data" for the symbol name of the Device/PLC "PLC1" to which data is written.

Transfer Source	
Node	
AGP1 Device Name	
PLC1	
Device Address	
Image: State of the state o	⊡ Local:Sheet3
Constant Value	PLC1 data
Data Type 16Bit(Signed) No. 1	

[Data Type] automatically appears after selection, too.

		C Constant	Value
	Ç	Data Type	16Bit(Signed)
<b>NOTE</b> • You can transf	fer	anv constan	t number instead of device values.

This is the end of the setting of data received by ACTION.

#### 13.1.8 Setting ACTION Node/Process Completion Notification

This step sets the name of an ACTION node and the alert setting whether it should be tuned on or off when the ACTION is completed.

#### **Ex.**

- ACTION Node : PC1
- Receive Notification: OFF

1 On the "Data settings to be received by ACTION" screen, click the [Next] button.



2 Click the list button of [ACTION Node] and select "PC1" as a node where ACTION operates. Also, clear the check if [Receive Notification Exists] has been checked.

Set ACTION Node/Process Completion Notification	×
ACTION Type Writes Data from CSV file.	
ACTION Name CSVDownload	
Specify an action node (Windows PC) where the ACTION works practically	į.
PC1 PC1 Reveive Notification Exists	
Please specify the notified device that will be informed of the execution of the ACTION. After the execution of the ACTION, it will be is turned on.	

- When "Receive Notification Exists" is turned on, the specified bit device will be turned on when the ACTION is completed. This can be used as a trigger condition (trigger) of the subsequent ACTION when you want to execute two or more ACTIONs sequentially.
- **3** Click the [Complete] button.

The "Set ACTION Node/Process Completion Notification" screen will disappear. On the left of the screen, the ACTION and trigger condition names you set will appear.

饕 P	ro-St	udio E	X t	est.npx		
File	Edit	Tool	Pro	ogrammine	g Assist	2
P	1	Start	<b>&gt;&gt;</b>		Node	
	Ad	d		Impo	nt	
	Ec	lit		Dele	te	
		CTION Ingger I Turr ata Tra Ievice I	/Dow Condi hOnW ansfe	tion /riteStartB r	lit	

This is the end of the settings of the ACTION node and process completion notification.

#### 13.1.9 Verifying Setting Result

This step verifies setting results on the setting content list screen.

1 Select the ACTION name "CSV Download" from the tree display on the left of the screen.

🏷 P	ro-St	udio E	X t	est.npx		
File	Edit	Tool	Pro	ogrammin	ig Assist	2
	1	Start	<b>&gt;&gt;</b>		Node	
	Ad	d		Impo	ort	l
	Ed	lit		Dele	ete	l
	- T	CTION rigger ( Turr lata Tra levice (	/Dow Cond hOnW ansfe	ition /riteStartf r	) 3it	

Confirm that the setting content appears on the right of the screen.

ietting Help	
> ≽ Symbol >> ≷ Feature >> 📄 Save >> 🆄	Transfer Monitor
ACTION-Specific Trigger Condition/Process List	ACTION
Add Edit Release	Delete ACTION
Data Source Node AGP1:PLC1	CSVDownload 📃
Trigger When WriteStart of Node AGP1 is Tu Condition Data	Rename
Completion PLC1da	Writes Data from CSV file.
	Set Parameter
L	ACTION Node
	PC1

2 Select the trigger condition name "TurnOnWriteStartBit" from the tree display on the left of the screen.

牧 P	ro-St	udio EX	t	est.npx		
File	Edit	Tool	Pro	gramming	g Assist	
	1	Start	»		Node	•
	Ac	ld		Impo	rt	
	Ec	dit		Dele	te	

Confirm that the setting content appears on the right of the screen.

ietting Help					
>> 🔑 Symbol >> ≷ Feature	» 🔡	Save ン 🕻	V Transfe		onitor Status
Trigger Condition	Sec	quence Dia <u>c</u>	gram by T	rigger Condition	
		Collapse	Tra	ansfer ACTION/Data	
TurnOnWrib - Edit	Feature	Source	Destinat	Receive/Process Co	
Node AGP1	CSVDow	AGP1.P →	PC1.CS		
When WriteStart of Node AGP1					

This is the end of the verification of the settings.

#### 13.1.10 Saving a Network Project File

This step saves the current settings as a network project file.

Refer to "25 Saving" for details about saving a network project file.

- Pro-Server EX' reads a created network project file, and then executes ACTION according to the settings in the file. The settings therefore need be saved in the network project file.
  - Be sure to reload the network project file to 'Pro-Server EX'. If not, ACTION will not work.

**Ex.** 

- Path of network project file
- Title

 $: Desktop \ CSV\_download.npx$ 

: CSV download action

#### 13.1.11 Transferring a Network Project File

This step transfers a saved network project file to entry nodes.

Refer to "26 Transferring" for details about transferring a network project file.

**NOTE** • Be sure to transfer a network project file. If not, ACTION will not work.

#### 13.1.12 Executing ACTION

This step verifies that data in the first column of a recipe sheet is written in the device of Device/PLC when the preset trigger condition has become effective.

🜉 Symbol - Monit	or of Pro-Se	rver EX									×
Node AGP1	▼ Polling time	Device/PLC		expended for read		dress Sheet3		Start Start			
G G Symbol	Data	type	+	Address	Count	+00	+01	+02	+03	+04	
StartWrit		(Signed)		M0001 D0050	1 5	60	70	80	90	100	
A											
NOTE			-			such function as					

Check the actually written values with such function as monitor of fudder creation software
If you want to achieve faster communication during ACTION, refer to "29 Tips for Faster Communication".

This is the end of the explanation of this ACTION.

# 13.2 Setting Guide

This section explains how to set the parameters of ACTION.

tail Configuration		EX Version 1
Destination Configuration		
Node Name %N	ODE	0K
Device Name		Cancel
Data Type Bit	T	
Readout File		
Readout File Name	Reference	
Readout Method	All the Row	
Readout Detail Configura	tion	
Start Row	Number of Rows	
Start Position	Number of Readouts	

Setting item		Setting content
	Node Name	Enter a GP node name to write data in. "%NODE" appears for initial setting, and the transfer source node in triggering ACTION becomes the target node in this case.
Destination Configuration	Device Name	Enter a device address or a symbol name to write data in. You can specify the device name of a transfer source node by specifying "%DEV [Device Address]" through indirect specification.
	Data Type	Specify the type of data to write.
Readout File	Readout File Name	Sets a CSV file name from which data is read out. Enter directly or specify the file on the "Select File" screen of Windows by clicking the [Reference] button. By specifying a macro code for the readout file name, you can set the file name as a node name or device data.
	Readout Method	Selects a CSV file read out method.
	Readout Detail Configuration	Set the details like readout start rows, corresponding to the selected readout method. Setting items vary depending on the selected method.

#### Readout Method and Detail Settings

The 6 types below are available for readout methods of CSV files.

#### ♦ All the Row

Readout detail settings	Setting content			
Start Row	Specifies a first row. Entering 0 or less sets the last row.			
Number of Rows	Specifies the number of rows. Entering 0 or less sets the last row.			

The shaded area on the table below indicates readout data from a CSV file, with the readout sequence from (1) to (10).



#### ◆ From the Middle to the Last Column of a Row

Readout detail settings	Setting content
Start Row	Specifies a first row. Entering 0 or less sets the last row.
Number of Rows	Specifies the number of rows. Entering 0 or less sets the last row.
Start Position	Specifies a first column. Entering 0 or less sets the last column.

The shaded area on the table below indicates readout data from a CSV file, with the readout sequence from (1) to (6).



The Number of Readouts from the Middle of a Row

Readout detail settings	Setting content
Start Row	Specifies a first row. Entering 0 or less sets the last row.
Number of Rows	Specifies the number of rows. Entering 0 or less sets the last row.
Start Position	Specifies a first column. Entering 0 or less sets the last column.
Number of Readouts	Specifies data columns to read out.

The shaded area on the table below indicates readout data from a CSV file, with the readout sequence from (1) to (6).



#### All the Column

Readout detail settings	Setting content
Start Column	Specifies a first column. Entering 0 or less sets the last column.
Number of Columns	Specifies the number of columns. Entering 0 or less sets the last column.

The shaded area on the table below indicates readout data from a CSV file, with the readout sequence from (1) to (10).



#### ◆ From the Middle to the Last Row of a Column

Readout detail settings	Setting content
Start Column	Specifies a first column. Entering 0 or less sets the last column.
Number of Columns	Specifies the number of columns. Entering 0 or less sets the last column.
Start Position	Specifies a first row. Entering 0 or less sets the last row.

The shaded area on the table below indicates readout data from a CSV file, with the readout sequence from (1) to (8).



#### ◆ The Number of Readouts from the Middle of a Column

Readout detail settings	Setting content
Start Column	Specifies a first column. Entering 0 or less sets the last column.
Number of Columns	Specifies the number of columns. Entering 0 or less sets the last column.
Start Position	Specifies a first row. Entering 0 or less sets the last row.
Numer of Readouts	Specifies data rows to read out.

The shaded area on the table below indicates readout data from a CSV file, with the readout sequence from (1) to (6).



# 13.3 Restrictions

Important information when writing data from CSV file to device

When using this ACTION, keep in mind the following points.

- (1) The data type of a write destination device is fixed to single when setting up ACTION. For example, you cannot write the first 5 rows of CSV data in bits as well as the remaining ones in character strings.
- (2) If there is any row with empty cells, follow these instructions:
  - If the data type is set to "Character string", ignore the empty data and read out. Ex.) When CSV data is "A,,B,C,,D", write as "A,B,C,D".
  - If the data type is not "Character string", write "0". Ignore the empty data, however, if it exists at the last column.
    - Ex.) When CSV data is "1,,2,3,,4,,", write as "1,0,2,3,0,4".
- (3) Hex data is written as Dec data.
- (4) To write non-string data except for hexadecimal, use only single-byte symbols ("+", "-", ".") which can be recognized as single-byte numbers or values. Start reading from the left-most digit to the right before the character which cannot be regarded as a number. If the left-most character cannot be treated as a numerical value, the data value is regarded as "0".
- (5) To write hexadecimal, do not use characters other than "0" to "9" and "A" to "F" (including double-byte/ single-byte characters and capital/small letters).
- (6) If you want to write values exceeding the preset data type range, the data is once converted into hexadecimal if surpassing 16 or 32 bits. Only the lowest 4 digits (8 digits in case of 32 bits) is written. However, 16 bits (32 bits) hexadecimal causes error.
- (7) Double quotation mark (" ")
  - If a double quotation mark exists in the first position of data, all the data until the next quotation is regarded as one unit of data. If there is no double quotation at the end of data, all the data to the end of the row is regarded as one unit of data. However, if 2 double quotation marks lie side by side like "" at the first position of data, these 2 are recognized as one double quotation of one character.
  - Double quotation marks found in any other position in a row are treated as characters.

(8) The writing of character string data is performed as follows.

Ex. 1) To write single-byte characters "AB,CD,E" in LS100 (word device), these are stored in LS as follows.

LS100	LS101	LS102
AB	CD	Е

Ex. 2) To write single-byte characters "ABC,DE" in LS100 (word device), these are stored as follows.

LS100	LS101	LS102
AB	С	DE

Ex. 3) To write the character string "E" from LS103, insert 2 single-byte spaces after the CSV data "CD", like "AB,CD,E".

LS100	LS101	LS102	LS103
AB	CD		Е