

# 13



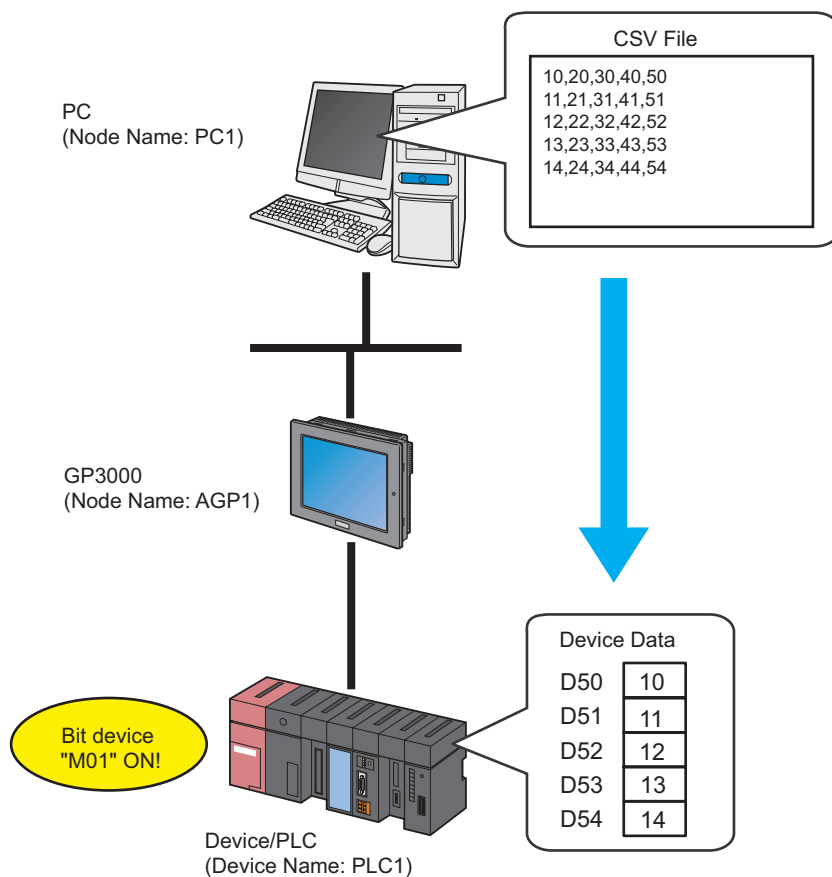
## Writing CSV File Data in Device/PLC

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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]

```
10, 20, 30, 40, 50  
11, 21, 31, 41, 51  
12, 22, 32, 42, 52  
13, 23, 33, 43, 53  
14, 24, 34, 44, 54
```

- 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'.

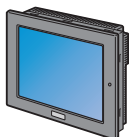
Refer to "3 Trial of Pro-Server EX" for details about starting method.

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

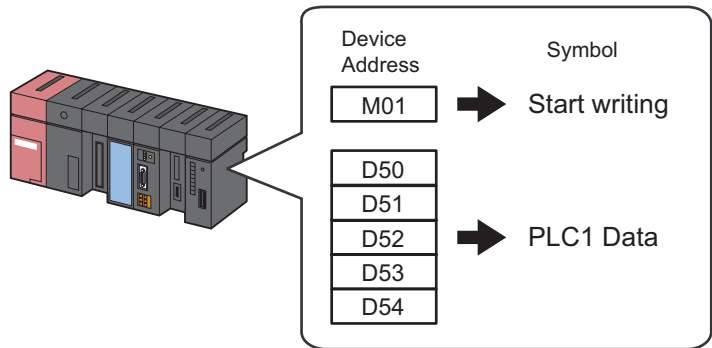
Ex.

Entry Node	Setting item	Setting example
PC	Node Name	PC1
	IP Address	192.168.0.1
GP	Type	GP3000 series
	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.



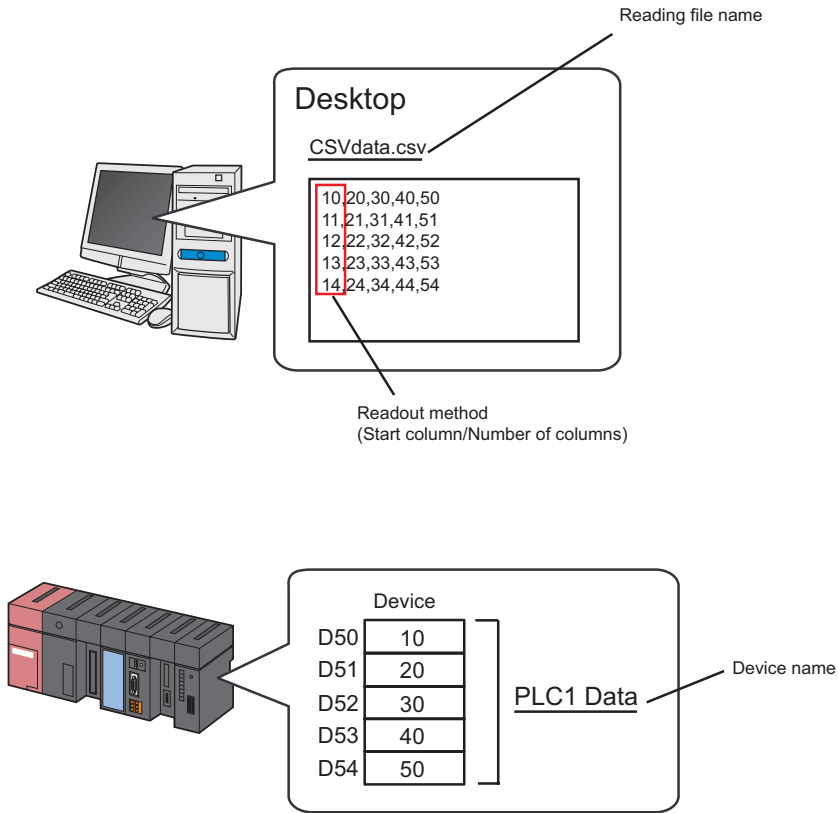
Ex.

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)

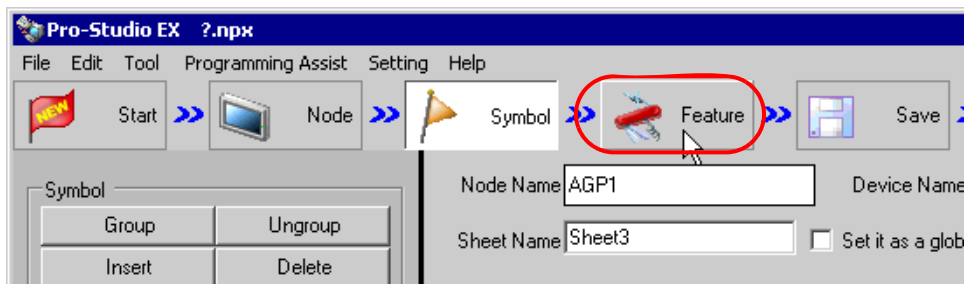
Refer to "13.2 Setting Guide" for more details about ACTION parameter.



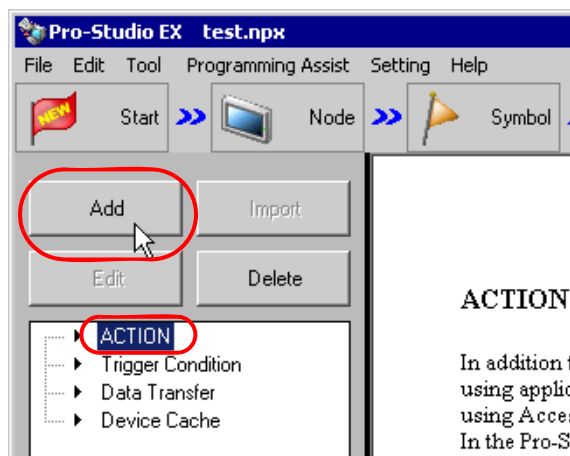
Ex.

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

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



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

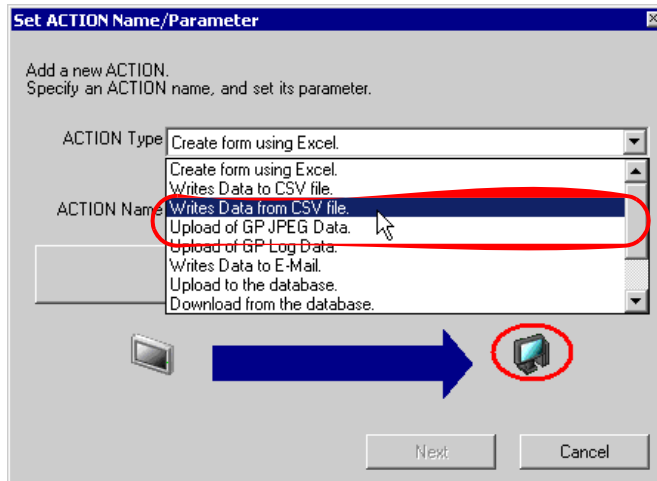
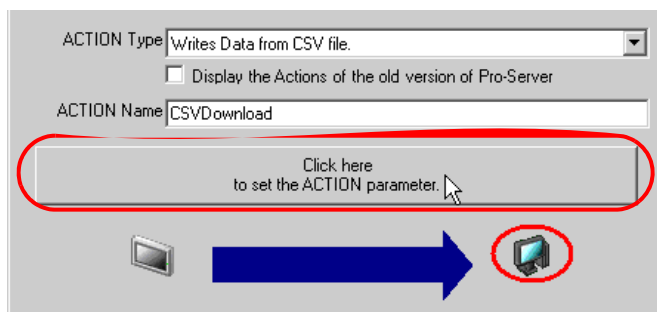




**3** Click the [ACTION Type] list button, and select "Writes Data from CSV file".

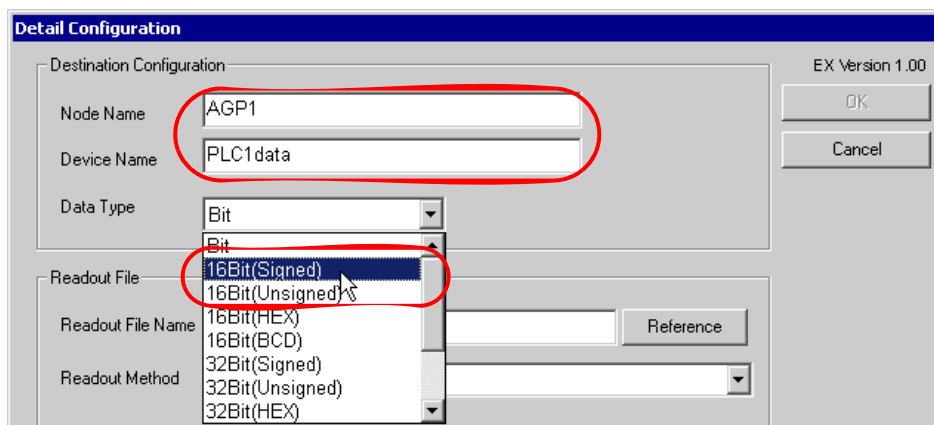
Then, enter the name of ACTION to set in the [ACTION Name] field. In this example, enter "CSV Download".

**NOTE** • [ACTION Name] can be an arbitrary name.

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

## 5 Make settings regarding the data write destination (device of Device/PLC).

- 1) 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".



### NOTE

- 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 GP3000/4000 Series or 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.

- 1) 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".

**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].

**NOTE**

- 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

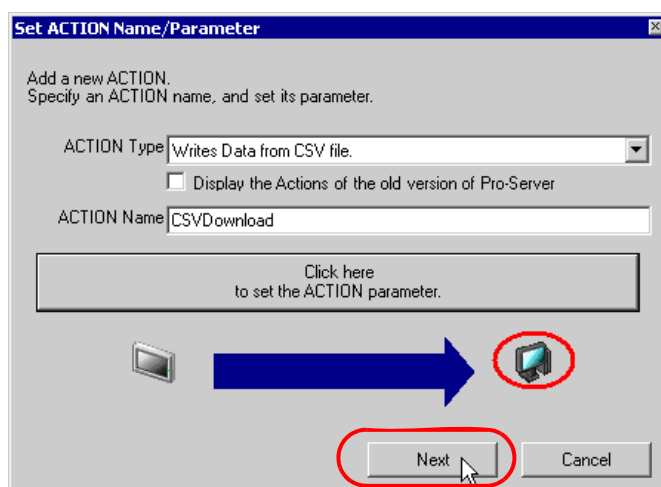
This step sets a trigger condition (trigger bit ON) to read out device data.

Refer to "33 Trigger Conditions" for details about trigger conditions.

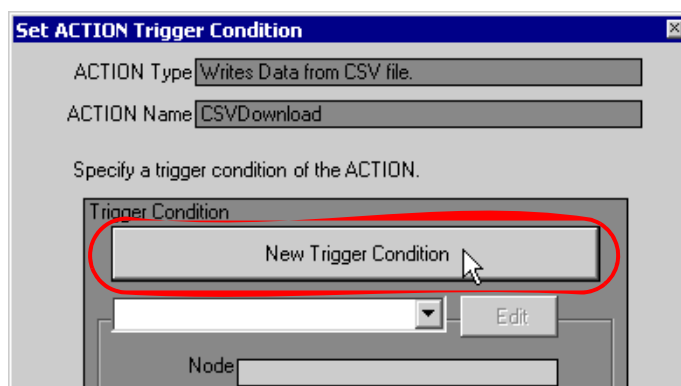
#### Ex.

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

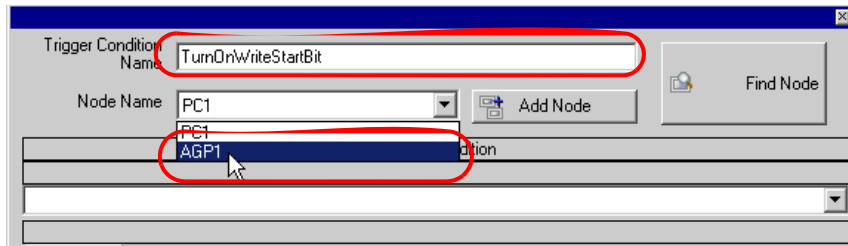
1 On the "Set ACTION Name/Parameter" screen, click the [Next] button.



2 Click the [New Trigger Condition] button.



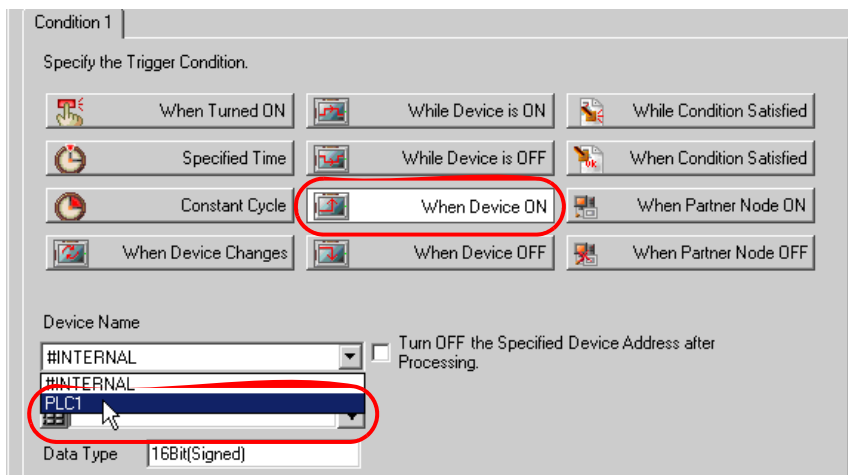
- 3 Enter the trigger condition name "TurnOnWriteStartBit" in [Trigger Condition Name], and select "AGP1" in [Node Name] which has the device to serve as the trigger condition (trigger).

**NOTE**

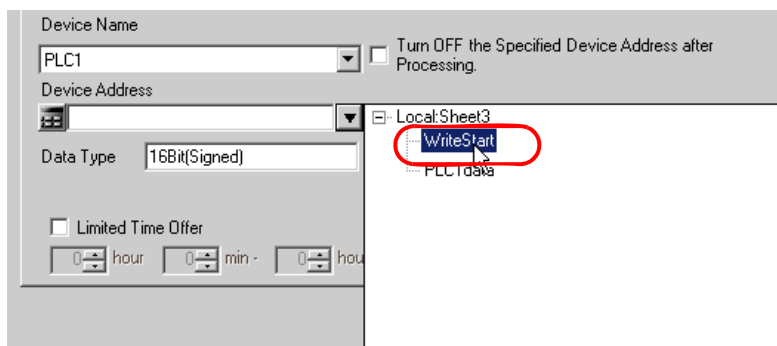
- Here, you are to specify the node having the device to be the trigger condition or having data to transfer.

☞ "33 Trigger Conditions"

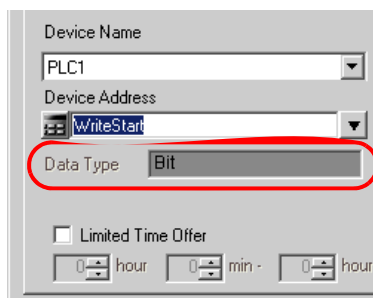
- 4 Click the [When Device ON] button in the [Condition 1] tab and select "PLC1" for the device name.



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



[Data Type] automatically appears after selection, too.



#### NOTE

- 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.

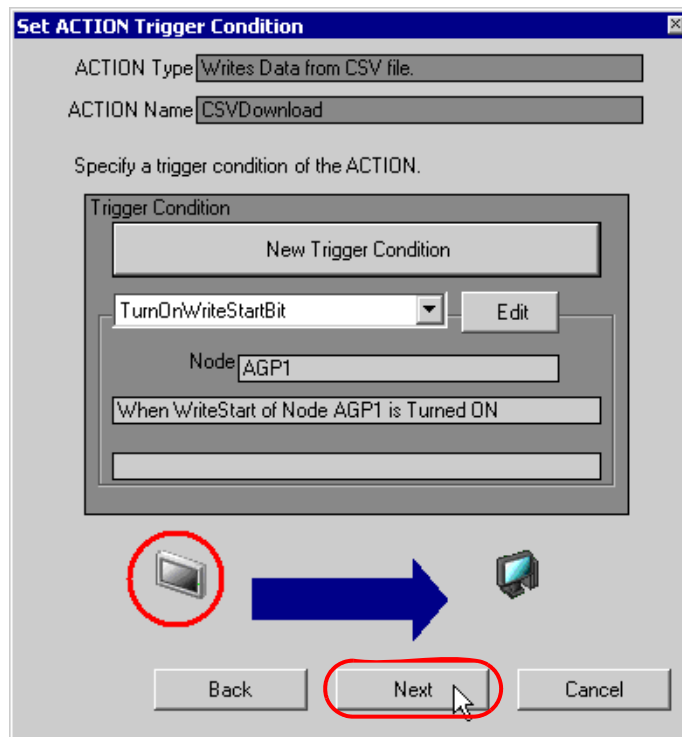
### 13.1.7 Setting Data Received by ACTION

This step sets data to transfer in ACTION.

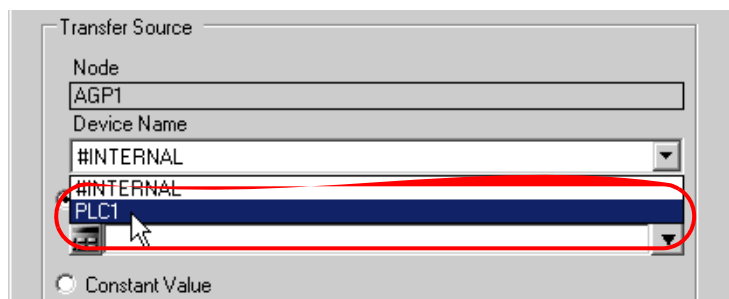
**Ex.**

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

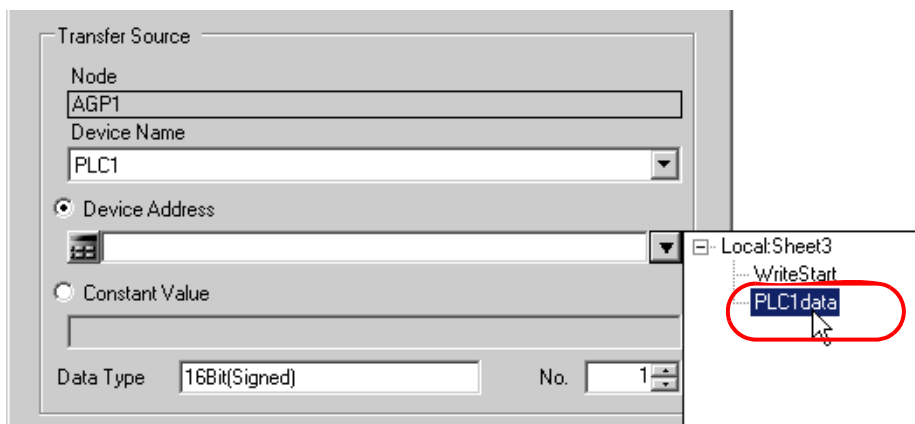
1 On the "Set ACTION Trigger Condition" screen, click the [Next] button.



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

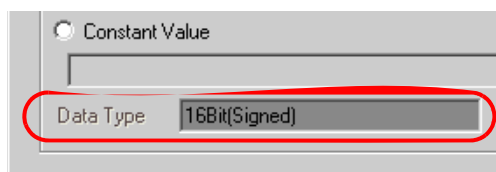


- 3 Click [Device Address] and then the list button to select "PLC1 data" for the symbol name of the Device/PLC "PLC1" to which data is written.





[Data Type] automatically appears after selection, too.



**NOTE** • You can transfer any constant number instead of device values.

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

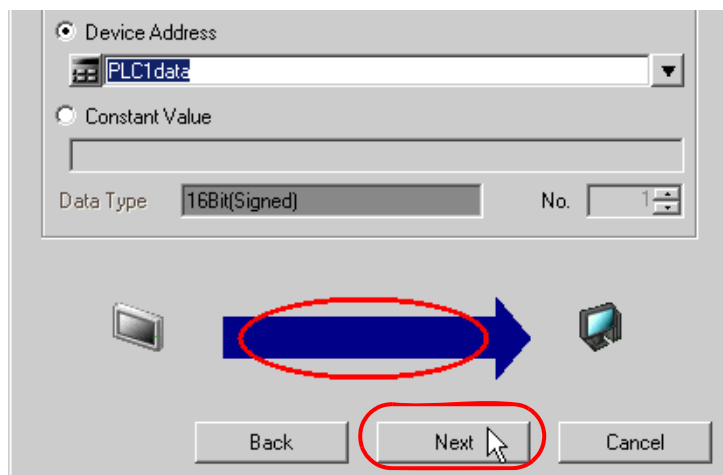
### 13.1.8 Setting ACTION Node/Process Completion Notification

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.

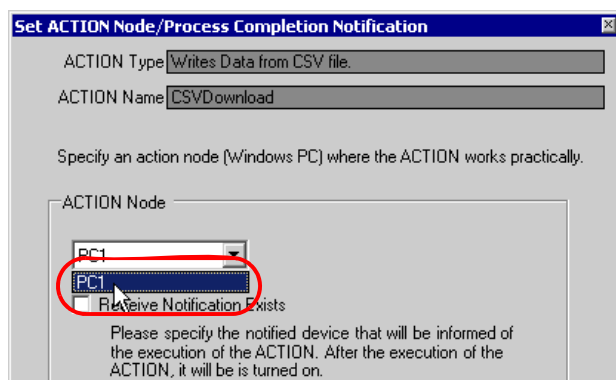
**Ex.**

- 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.

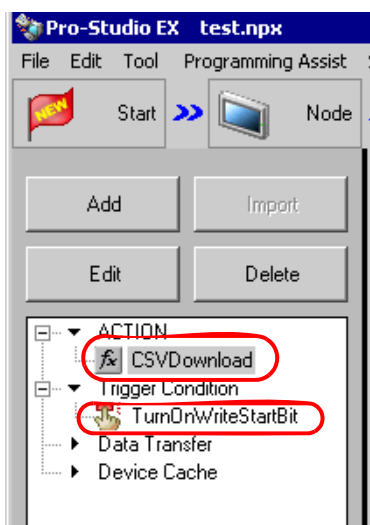


- NOTE** • When "Receive Notification Exists" is turned on, the specified bit device will be turned on when the ACTION is completed. This can be used as a trigger condition (trigger) of the subsequent ACTION when you want to execute two or more ACTIONs sequentially.

☞ "33 Trigger Conditions"

- 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.

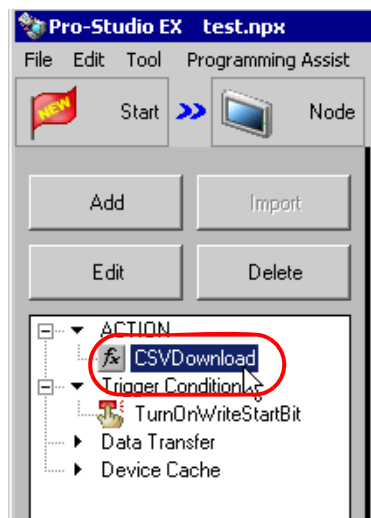


This is the end of the settings of the ACTION node and process completion notification.

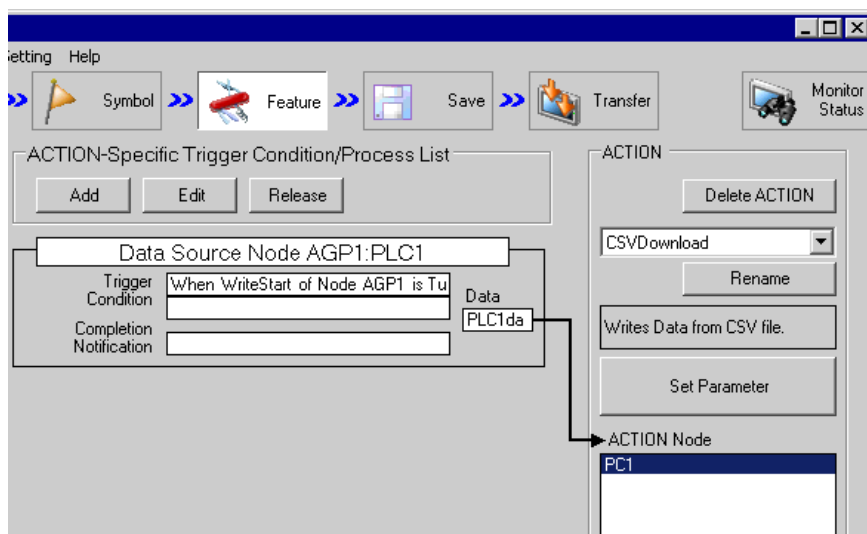
### 13.1.9 Verifying Setting Result

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

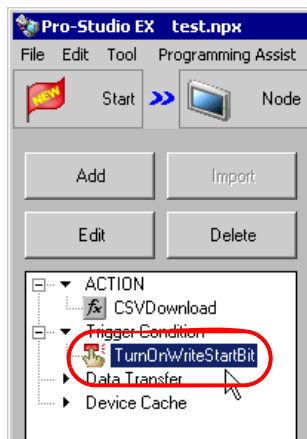
- 1 Select the ACTION name "CSV Download" from the tree display on the left of the screen.



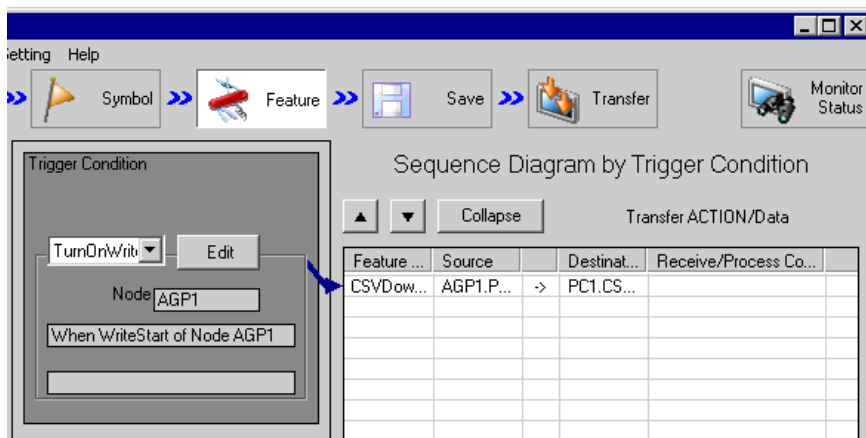
Confirm that the setting content appears on the right of the screen.



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



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



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.

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**IMPORTANT**

- '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 : Desktop\CSV\_download.npx
- Title : 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.

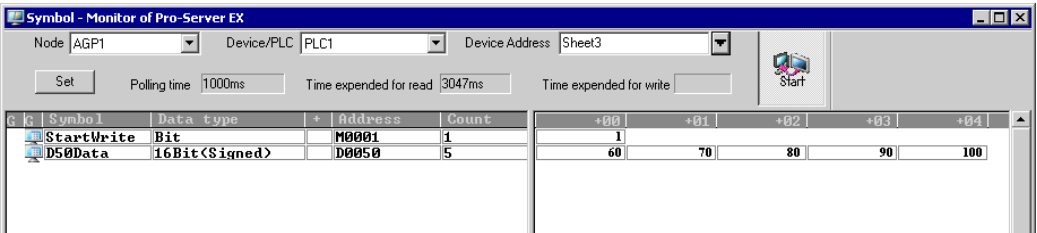
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**NOTE**

- 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.



- NOTE**
- Check the actually written values with such function as monitor of rudder 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.

Setting item		Setting content
Destination Configuration	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.
	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. ☞ "37.1 Restrictions on Names"
	Readout Method	Selects a CSV file read out method. ☞ "Readout Method and Detail Settings"
	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"

## 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).

		1	2	3	4	5	
1							
Start row → 2	(1)	(2)	(3)	(4)	(5)		Number of rows
3	(6)	(7)	(8)	(9)	(10)		
4							
5							

## ◆ 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).

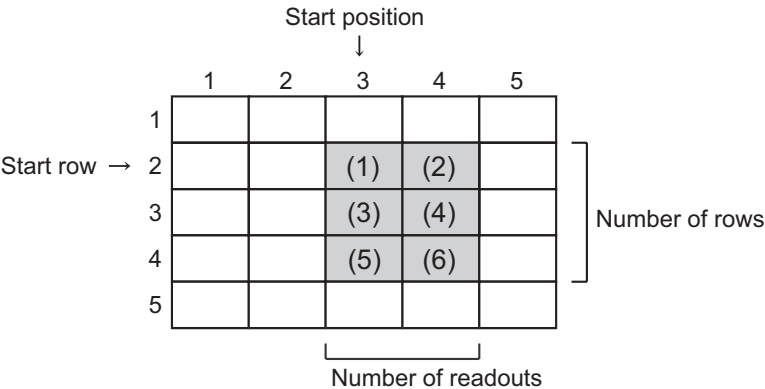
			Start position				
			↓				
		1	2	3	4	5	
1							
Start row → 2			(1)	(2)	(3)		Number of rows
3			(4)	(5)	(6)		
4							
5							



◆ 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.

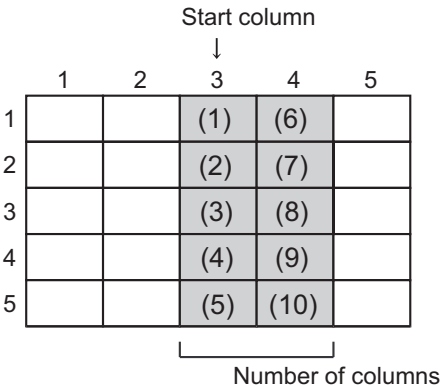
The shaded area on the table below indicates readout data from a CSV file, with the readout sequence from (1) to (6).



◆ 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).

			Start column ↓		
	1	2	3	4	5
Start position →	1				
	2		(1)	(5)	
	3		(2)	(6)	
	4		(3)	(7)	
	5		(4)	(8)	
			Number of columns		

## ◆ 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).

			Start column ↓		
	1	2	3	4	5
Start position →	1				
	2		(1)	(4)	
	3		(2)	(5)	
	4		(3)	(6)	
	5				
			Number of columns		
				Number of readouts	

## 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	E

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

LS100	LS101	LS102
AB	C	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		E