11 Writing Excel Data in Device/PLC

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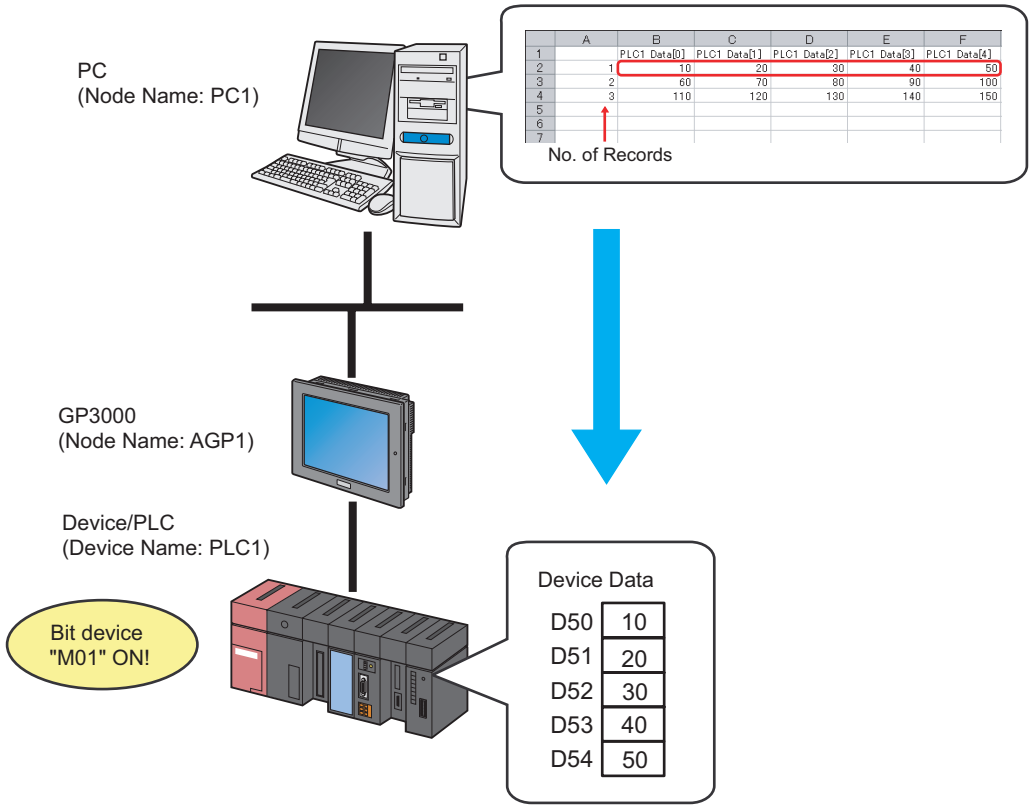
11.1 Try to Write Recipe Data in Device/PLC

[Action Example]

Detect the rising of the trigger device (bit device: "M01") of Device/PLC and write recipe sheet data created in Excel into 5 devices (word device: address "D50" to "D54") of Device/PLC.

(Example) Writing the data of record No. "1" of a recipe sheet.



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

[Setting Procedure]

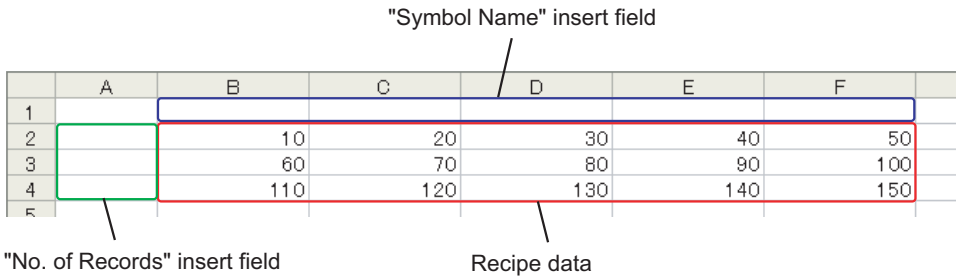
1	Creating a Recipe Sheet	This step creates a recipe sheet in 'Microsoft Excel' to write in Device/PLC.
2	Starting 'Pro-Studio EX'	This step starts 'Pro-Studio EX'.
3	Registering Entry Nodes	This step registers the PC and the GPs as entry nodes.
4	Registering Symbols	This step registers as a symbol the device of Device/PLC to write data in.
5	Specifying a Recipe Sheet and its Output File	This step sets the following items: • Specify a recipe sheet • Specify an output file
6	Setting the Contents of a Recipe Sheet	This step sets the following items: • Set a writing device • Set the area to read out
7	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.
8	Verifying Setting Result	This step verifies setting results on the setting content list screen.
9	Saving a Network Project File	This step saves the current settings as a network project file and reloads.
10	Transferring a Network Project File	This step transfers a saved network project file to the GP.
11	Executing ACTION	This step verifies that recipe data is written in the specified area of Device/PLC when the preset trigger condition has become effective.

11.1.1 Creating a Recipe Sheet

This step creates a recipe sheet where data to write in Device/PLC exists.

1 Start 'Microsoft Excel' and create the recipe sheet below in Sheet 1.

[Creation Example]



Leave both spaces for "Symbol Name" (Cells B1 to F1) and those for "Record No." (Cells A2 to A4) blank for these will be automatically allotted and filled in after completing the setting.

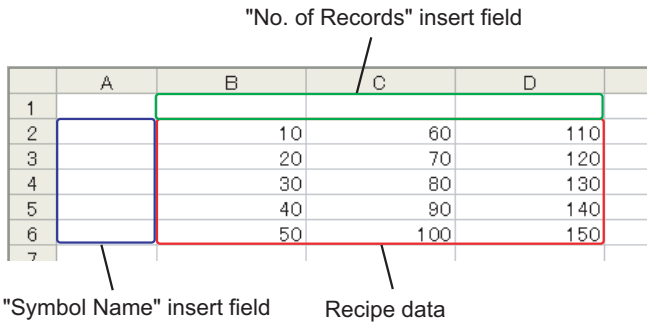
NOTE

- You can prepare multiple recipe data on Excel.
  Allot a record No. for each recipe to specify data to write in Device/PLC. For details, refer to "11.1.6 Setting the Contents of a Recipe Sheet" mentioned later.

2 Save the recipe sheet with the file name "recipe.xls" on PC desktop after creating.

NOTE

- You can create a recipe sheet in the direction (horizontal) as shown below.



11.1.2 Starting 'Pro-Studio EX'

This step starts 'Pro-Studio EX'.

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

11.1.3 Registering Entry Nodes

This step registers the PC and the GP connected with network as nodes.

Refer to "30 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

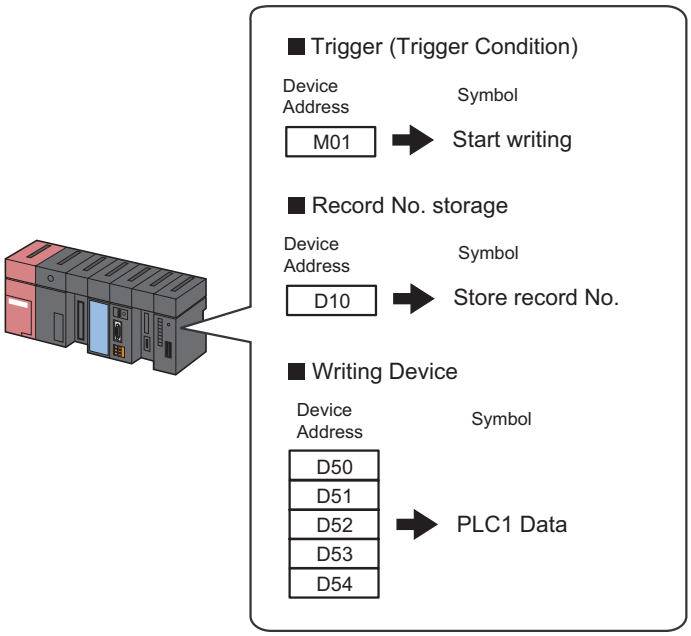
Ex.

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

11.1.4 Registering Symbols

This step registers as a symbol the device address of Device/PLC to which device data is written.

Refer to "31 Symbol Registration" for details about symbols.



Ex.

- Trigger (Trigger Condition)

Setting item	Setting content
Symbol Name	Start writing
Data Type	Bit
Device address for symbol registration	"01" of Device/PLC (PLC1)
No. of Devices	1

- Record No. storage

Setting item	Setting content
Symbol Name	Record No. Storage
Data Type	16Bit (Unsigned)
Device address for symbol registration	"10" of Device/PLC (PLC1)
No. of Devices	1

- Writing Device

Setting item	Setting content
Symbol Name	PLC1 data
Data Type	16Bit (Signed)
Device address for symbol registration	"D50" to "D54" of Device/PLC (PLC1)
No. of Devices	5

11.1.5 Specifying a Recipe Sheet and its Output File

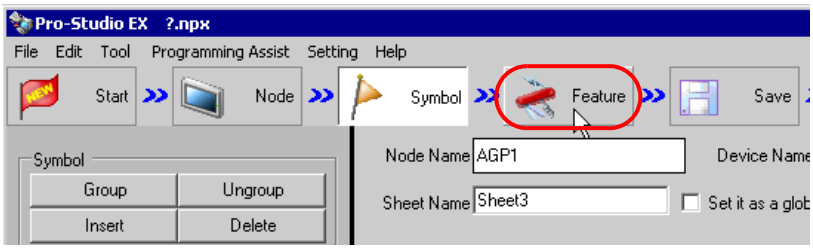
This step specifies the pre-created recipe sheet and its output file.

Refer to "11.3 Setting Guide" for more details.

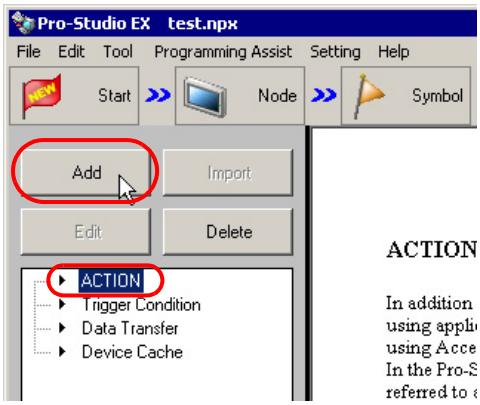
Ex.

Setting item		Setting content
Specify a Template	Template File	C:\Documents and Settings\Administrator\Desktop\recipe.xls
Output File	Folder Name	C:\Documents and Settings\Administrator\Desktop
	File Name	Recipe write.xls
	Start with the output file displayed	Not checked

1 Click the [Feature] icon on the toolbar.



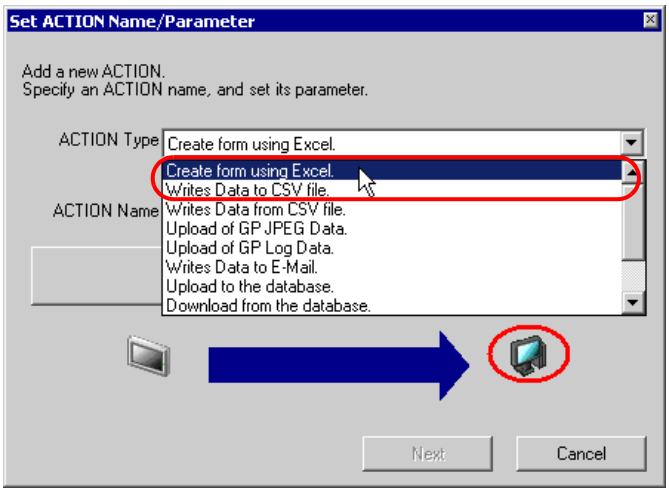
2 Select [ACTION] from the tree display on the left of the screen, then click the [Add] button.



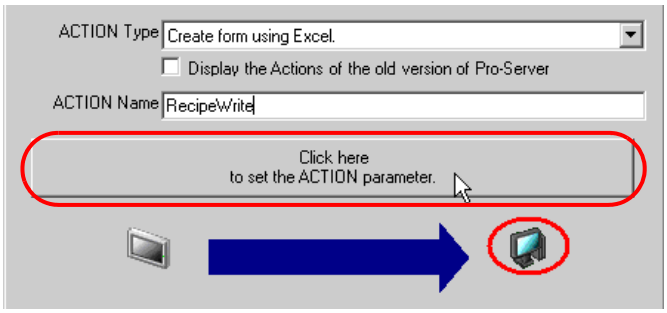
3 Click the [ACTION Type] list button, and select "Create form using Excel".

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

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

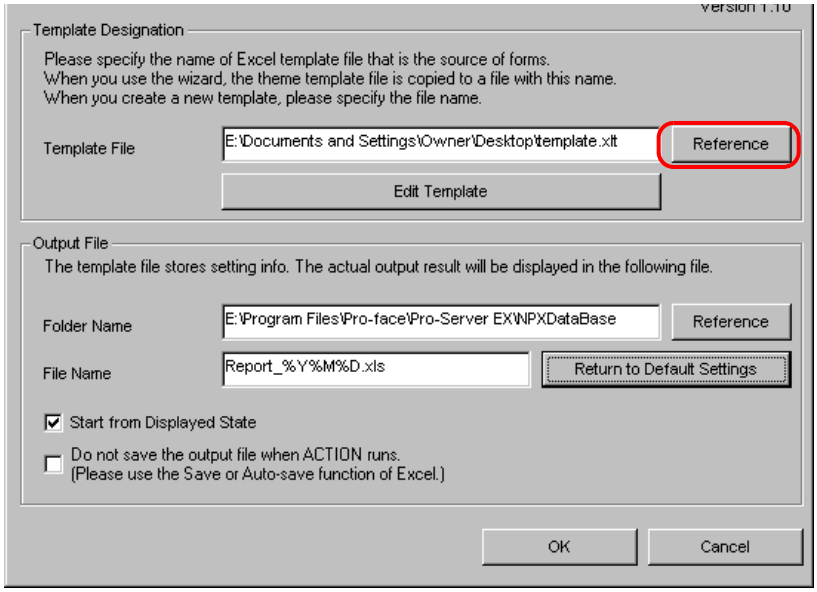


4 Click the [Click here to set the ACTION parameter] button.

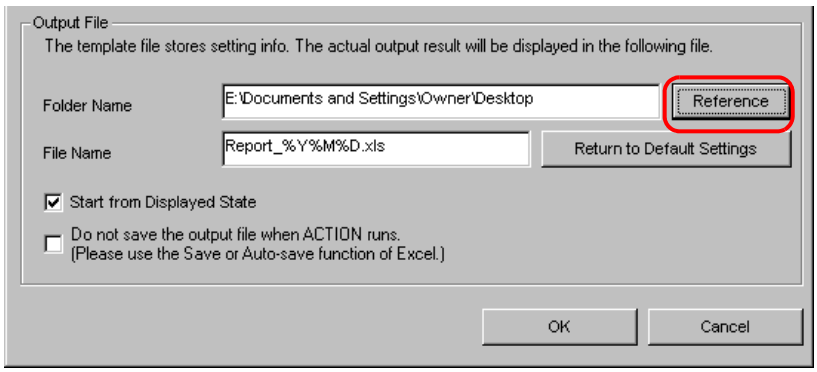


5 Make settings regarding an Excel template and its output file.

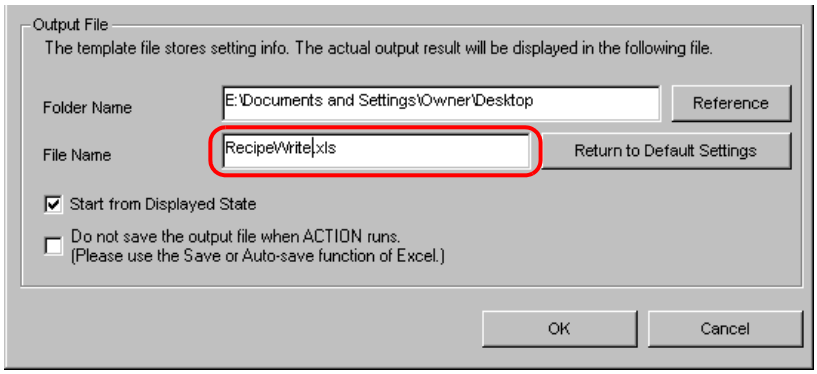
1) Click the [Reference] button of [Template File] to set the template file "templete.xlt" which you created.



2) Click the [Reference] button of [Folder Name] and specify "Desktop" as a folder to save the output file.



3) Set the file name "Recipe Write.xls" in the [File Name] field for the output file to set.

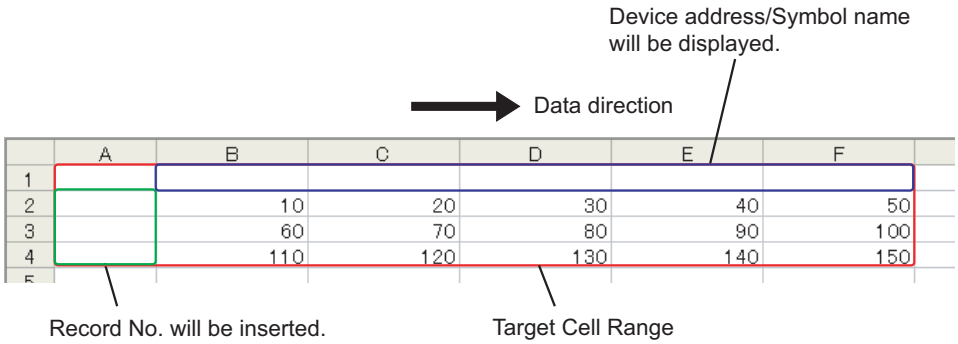


11.1.6 Setting the Contents of a Recipe Sheet

This step sets the contents of a recipe sheet for writing data to Device/PLC.

The example below shows the setting of data write area (recipe area) of a recipe sheet.

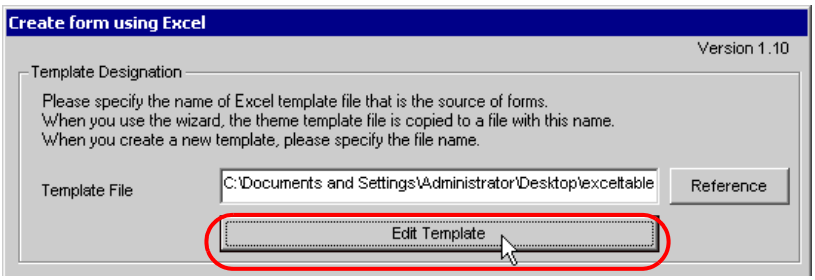
Refer to "11.3 Setting Guide" for more details.



Ex.

Setting item	Setting content
Entry Node	AGP1
Device Name	PLC1
Device Address/Symbol Group	PLC1 data
Add Device Address/ Symbol Name	Checked
Target Cell Range	A1 to F4
Data Direction	Specify the direction of record No.s as "Vertical".
Trigger Condition Name	Turn on write start bit
Trigger Condition	When "Start writing" (M01) is ON

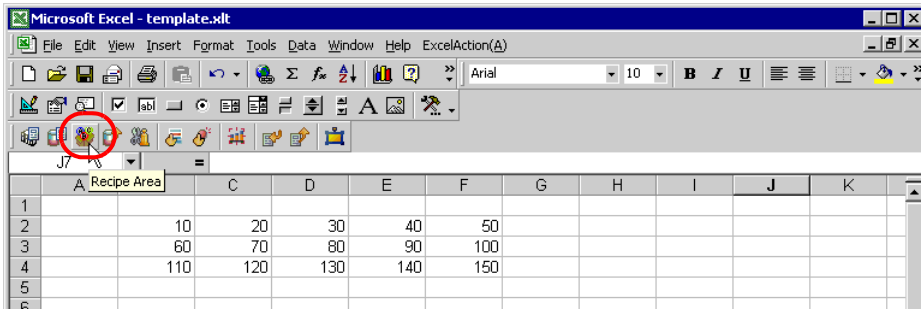
1 Click the [Edit Template] button.



The recipe sheet appears.

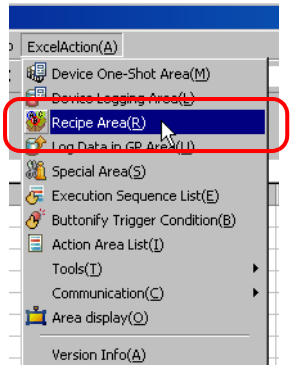
2 Set a data write area.

1) Click the [Recipe Area] icon on Excel.

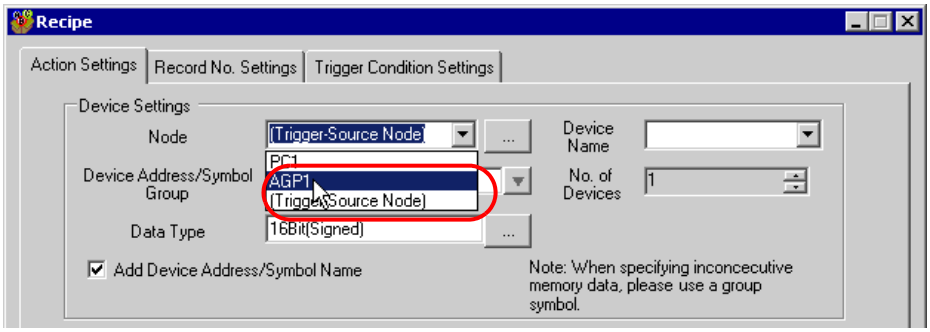


NOTE

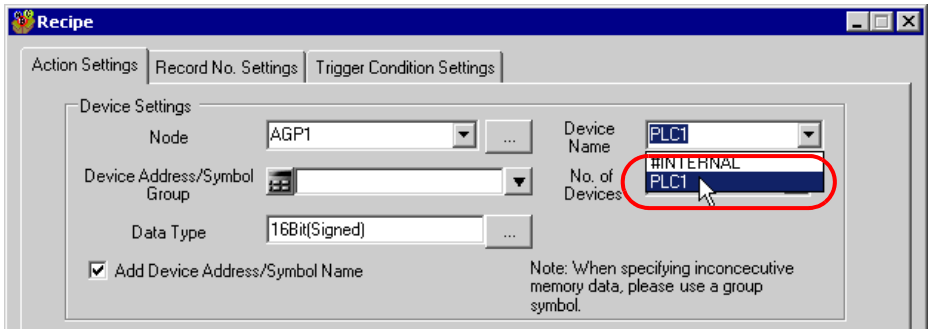
- Selecting "Recipe Area" from [Excel Action] of the menu displays the same screen.



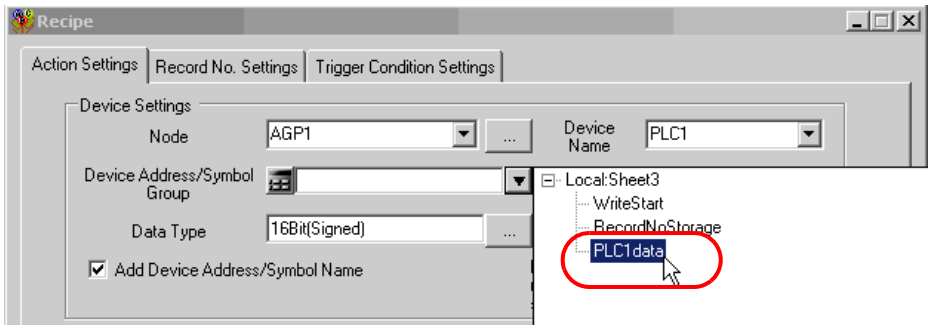
2) Click the list button of [Node] and select "AGP1" as a data transfer destination node.



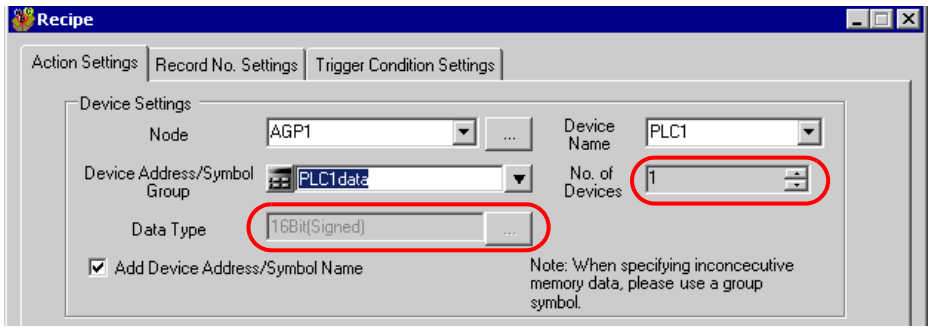
3) Click the list button of [Device Name] and select "PLC1" as a data transfer destination device.



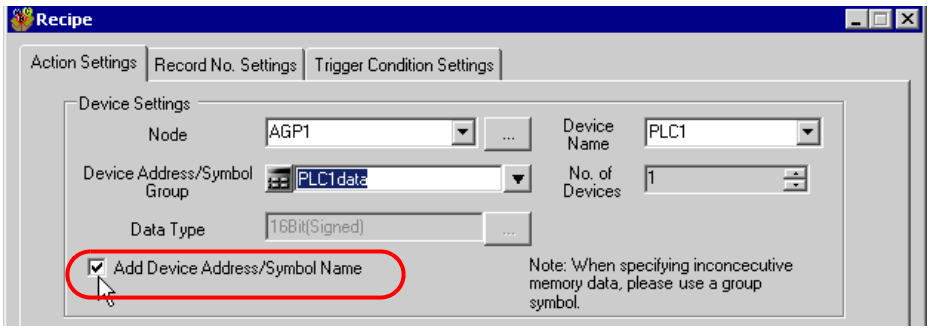
4) Click the list button of [Device Address/Symbol Group] and select "PLC1 data" as a symbol of the data to write in.



The device number "1" will be automatically entered in [No. of Devices], and "16Bit(Signed)" in [Data Type].



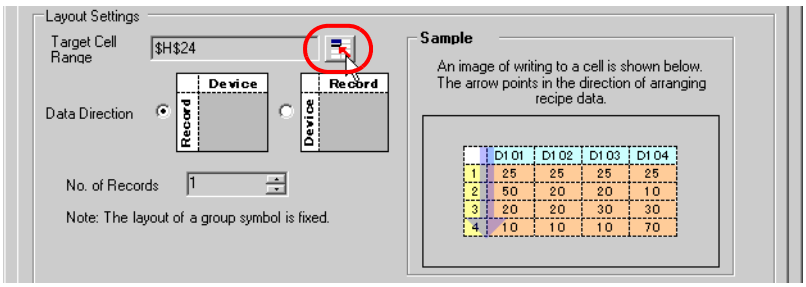
5) Check [Add Device Address/Symbol Name].



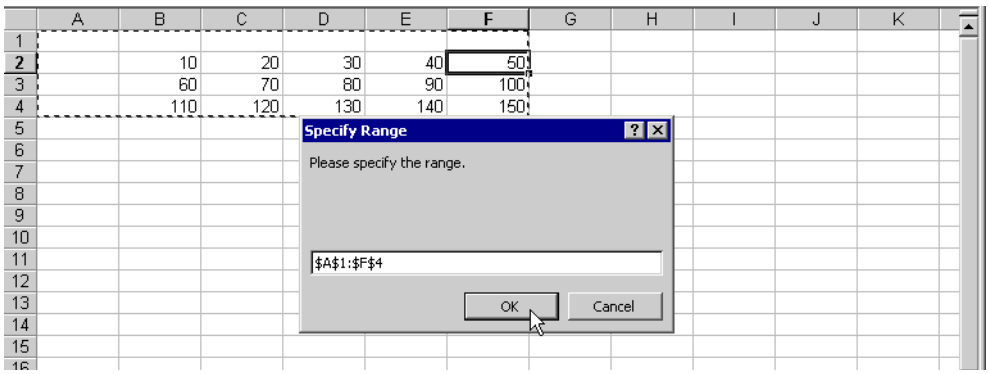
NOTE

- After the procedure of "11.1.9 Saving a Network Project File" described later, open the template again, and open the recipe setting dialog box. After confirming that the "Add Device Address/ Symbol Name" checkbox has been checked, click the [OK] button. Then, the device address/ symbol name will be reflected in the template.

6) Click the cell range specify button of [Target Cell Range].



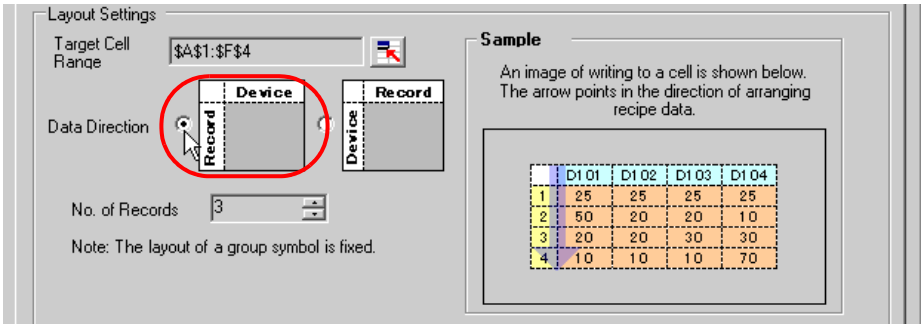
7) Drag the mouse to specify the data write area (cells A1 to F4). Then click the [OK] button.



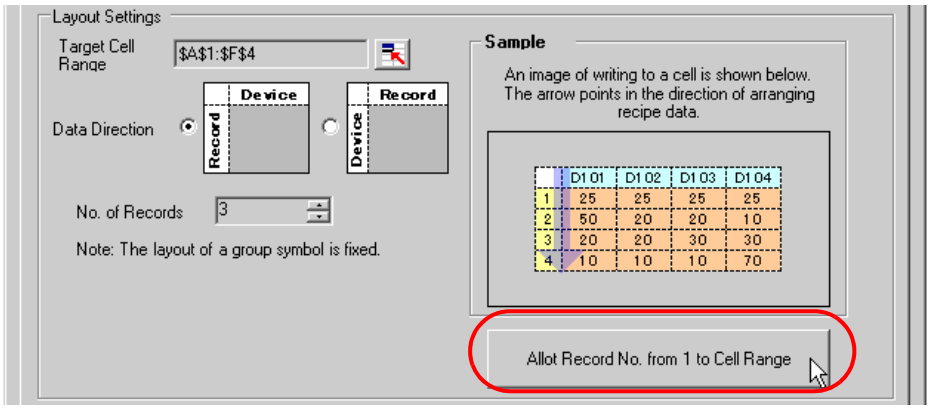
NOTE

- When specifying the area, cover the cells to insert record No.s and Device Address/Symbol Names.

8) Select "Vertical" of [Data Direction].



9) Click [Allot Record No. from 1 to Cell Range].



NOTE

- Specify the recipe data to write in Device/PLC with record No.s. This example allots record No.s to the recipe data.

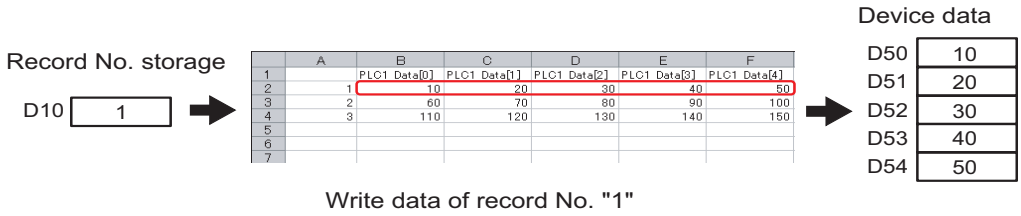
Record No.s and ruled lines are automatically added on the recipe sheet.

	A	B	C	D	E	F
1		PLC1data[0]	PLC1data[1]	PLC1data[2]	PLC1data[3]	PLC1data[4]
2	1	10	20	30	40	50
3	2	60	70	80	90	100
4	3	110	120	130	140	150

3 Specify a record No.

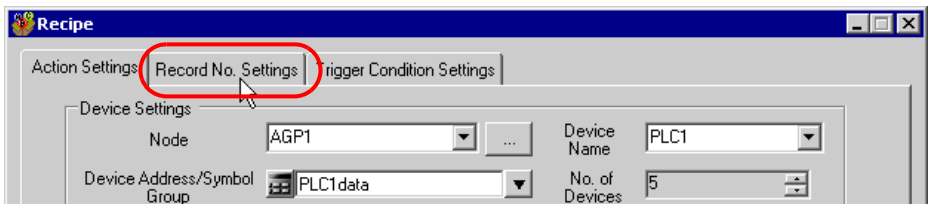
Specify the recipe data by entering a record No. in the symbol "Record No. storage" from GP or Device/PLC.

(Example) In case of storing device data "1" in the device "Record No. storage".

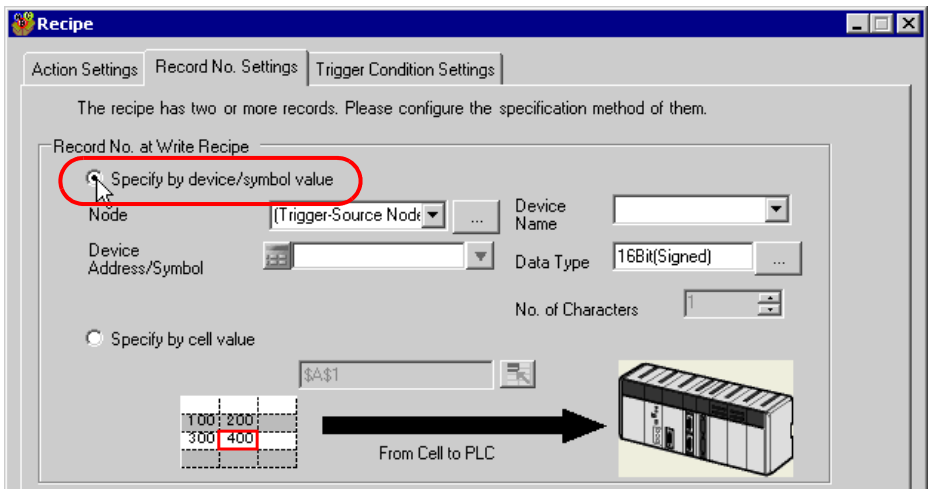


Write data of record No. "1"

1) Click the [Record No. Settings] tab.



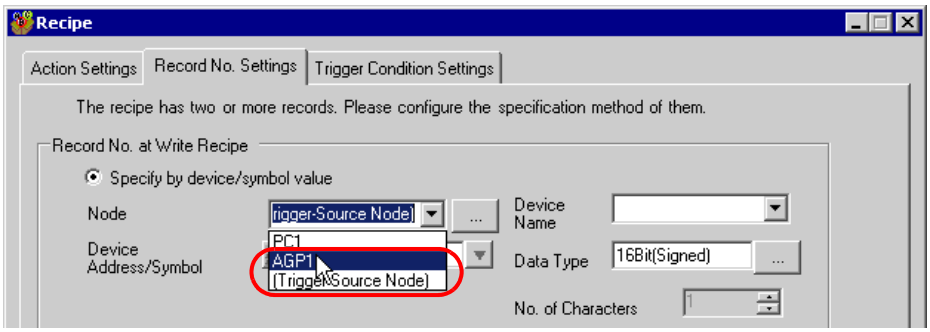
2) Click "Specify by device/symbol values" in [Record No. at Write Recipe].



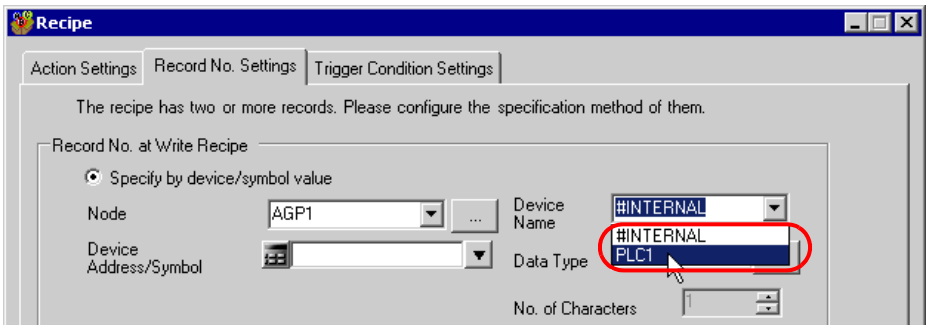
NOTE

- If you select [Specify by cell value], specify any cell on Excel. The number entered in the cell is recognized as the record No.
  Refer to "11.3 Setting Guide" for more details.

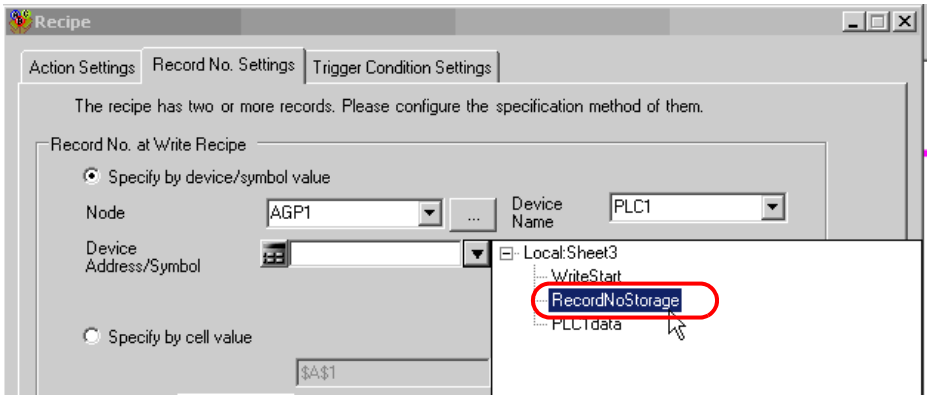
3) Click the list button of [Node] and select the node name "AGP1" which has the Device/PLC to store the record No.



4) Click the list button of [Device Name] and select the Device/PLC "PLC1" to store the record No.



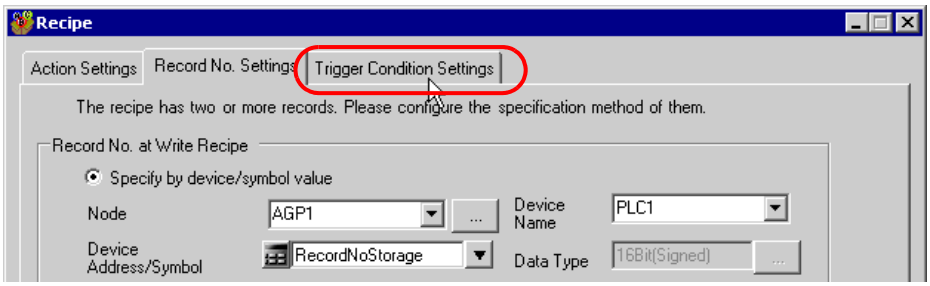
5) Click the list button of [Device Address/Symbol] and select the symbol name "Record NoStorage" of the device to store the record No.



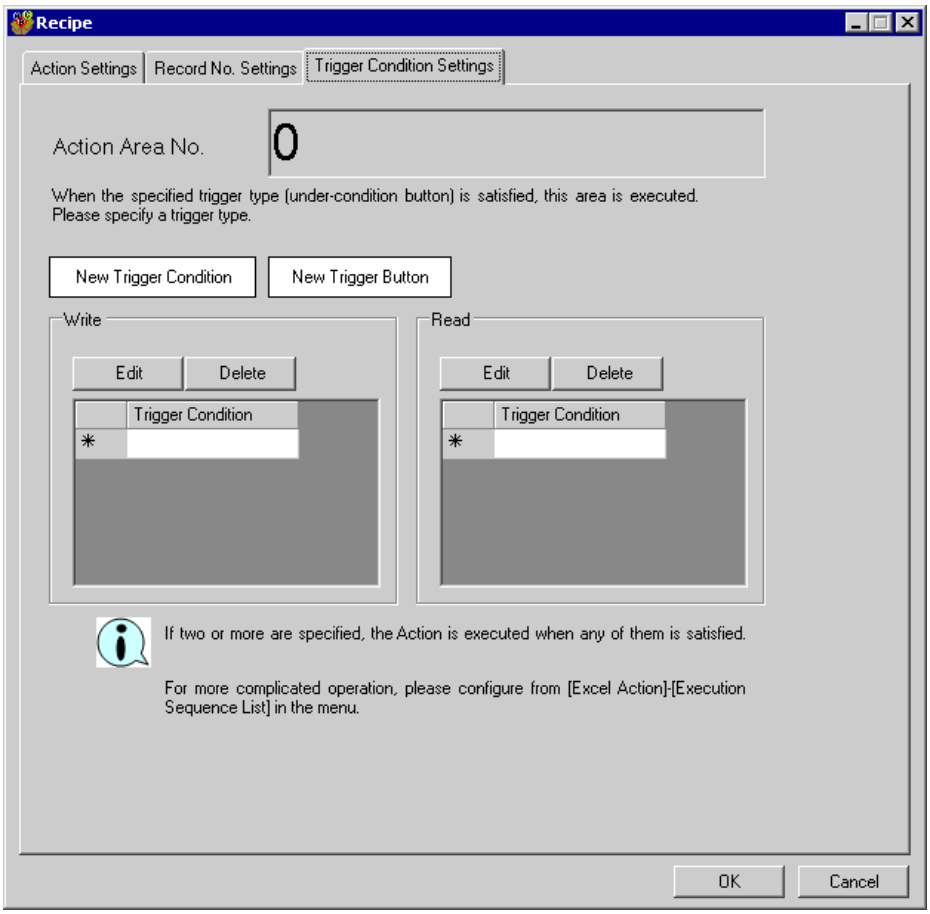
The device data type "16Bit(Unsigned)" will be automatically entered in [Data Type].

4 Set trigger conditions.

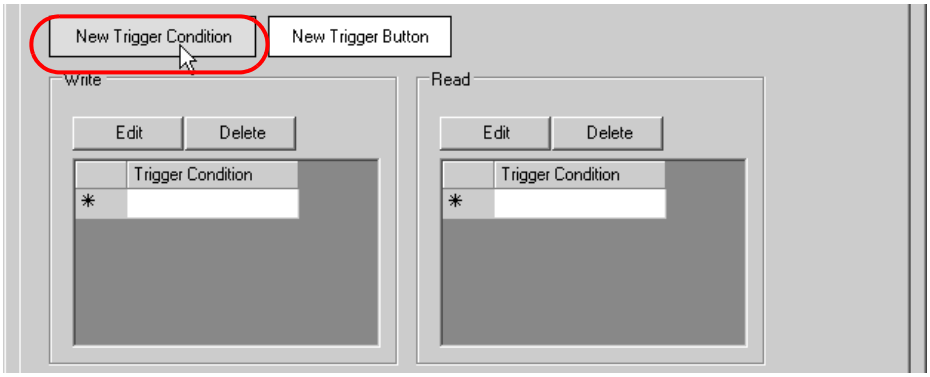
1) Click the [Trigger Condition Settings] tab.



The "Trigger Condition Settings" screen will appear.



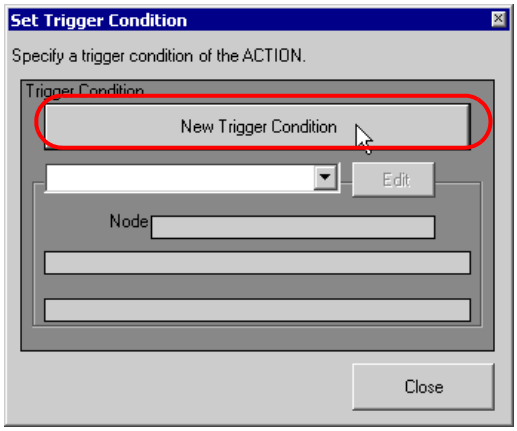
2) Click the [New Trigger Condition] button.



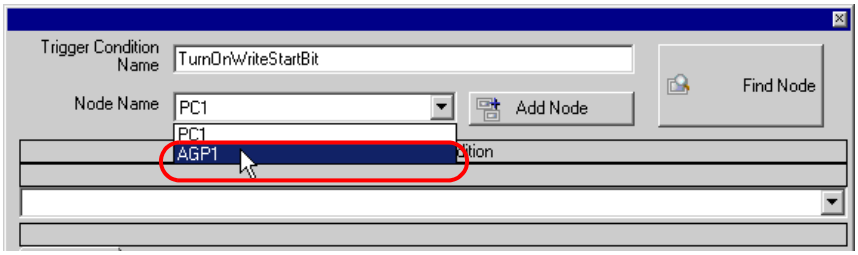
NOTE

- You can also activate ACTION by placing a button on Excel from [New Trigger Button] and clicking it. Refer to "11.3 Setting Guide" for more details.

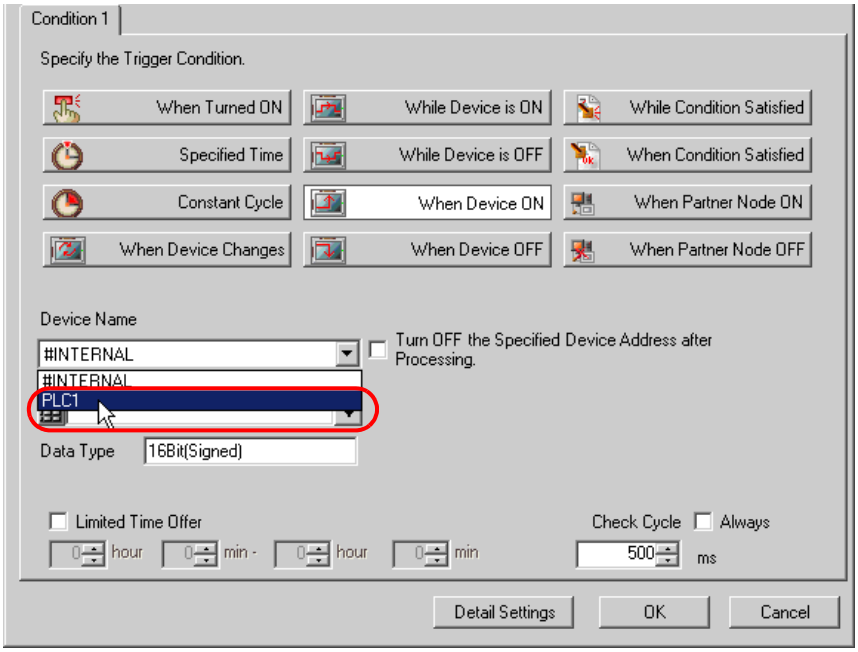
3) Click the [New Trigger Condition] button.



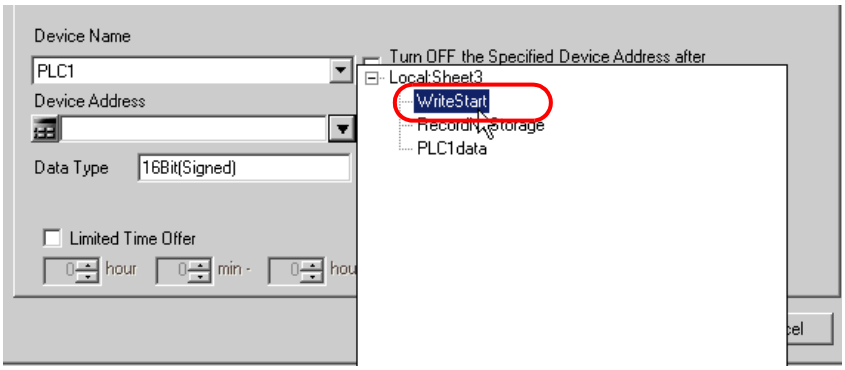
4) Enter the trigger condition name "TurnOnWriteStartBit" in [Trigger Condition Name], and select "AGP1" in [Node Name] as a name of the data transfer source.



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

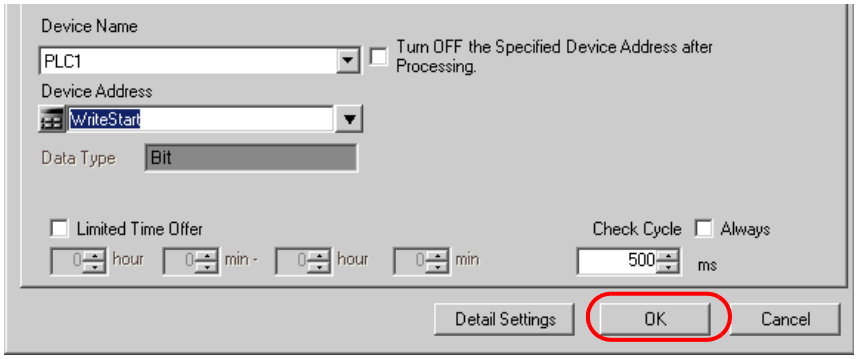


6) Click the [Device Address] list button and select "WriteStart" for the device symbol name which serves as the trigger.

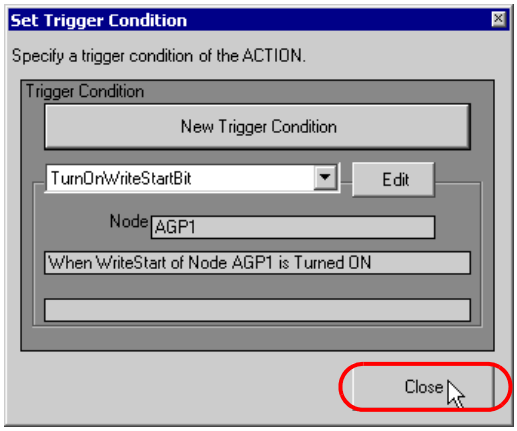


[Data Type] automatically appears after selection, too.

7) Click the [OK] button.

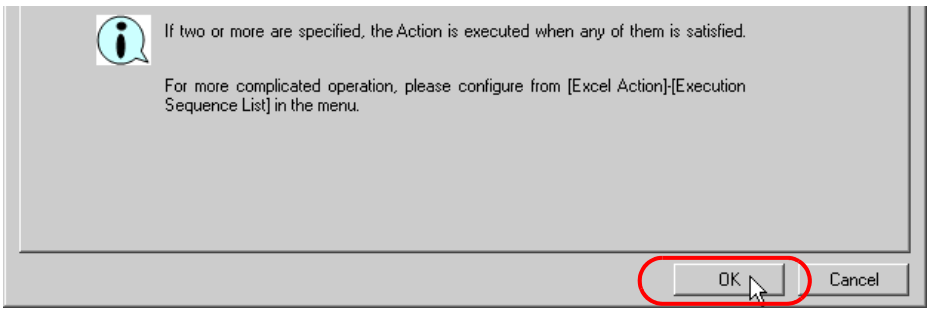


8) Click the [Close] button.



9) Click the blank line of [Write] and select "TurnOnWriteStartBit" as a trigger condition.

10) Click the [OK] button.



11) Click the [OK] button.

NOTE

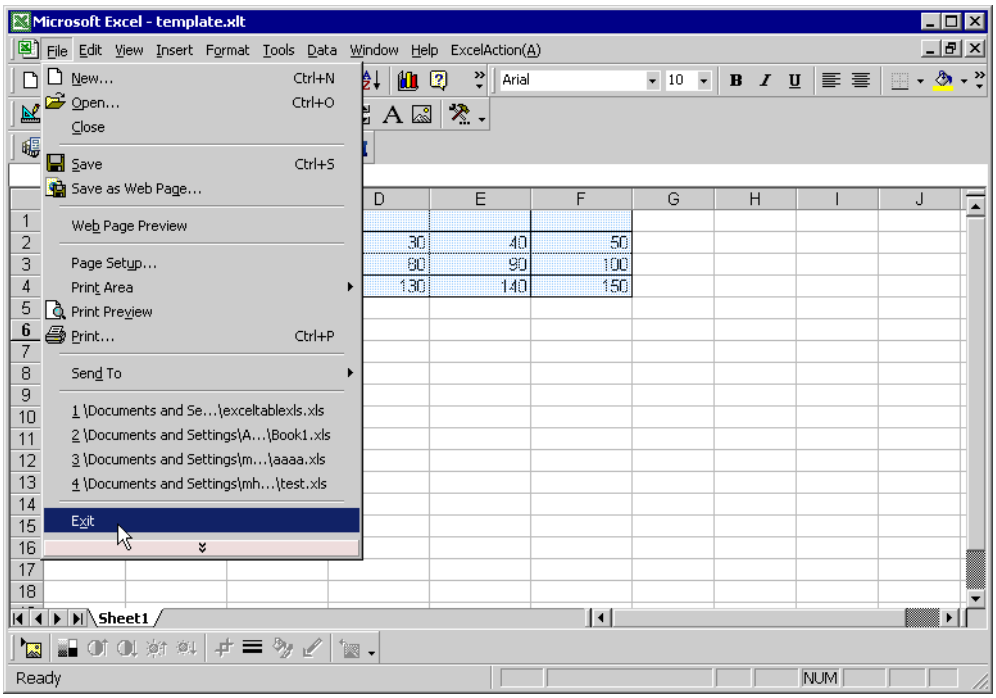
- Here the dialog box will appear because no network project file is loaded to 'Pro-server EX'. This is not a problem, however.
  The file will be loaded in "11.1.9 Saving a Network Project File mentioned later.

This is the end of the content settings of a recipe sheet.

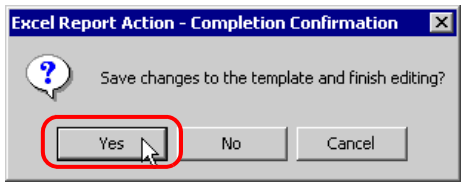
NOTE

- Can display Data/Time on an Excel sheet.
  ☞ "5.2 Writing Date/Time in a Form"
- Can display arrows on an Excel sheet.
  ☞ "5.3 Writing Arrows in a Form"
- Can display a trigger source node on an Excel sheet.
  ☞ "5.4 Writing Trigger Source Node Names in a Form"

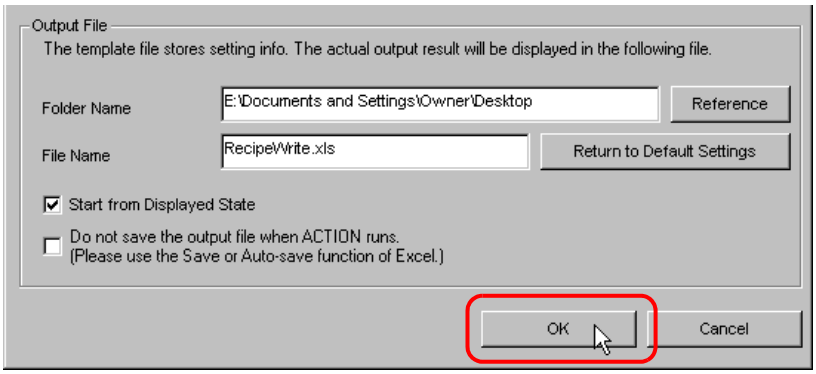
5 Close 'Excel'.



The following dialog box will appear, asking you if you want to save changes before closing. Click the [Yes] button.



6 On the "Create form using Excel" screen, click the [OK] button.



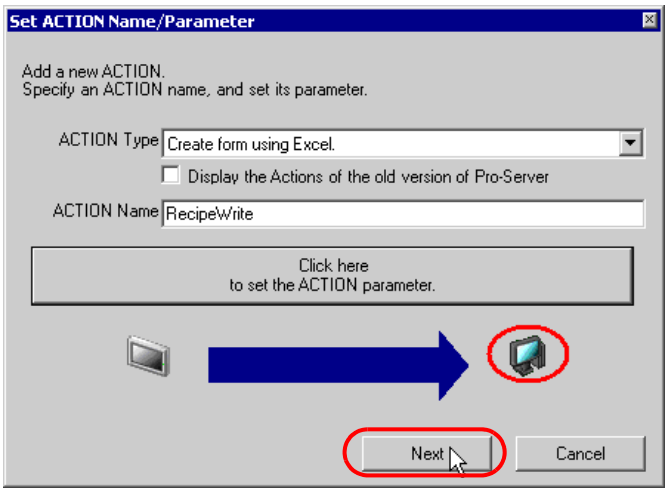
11.1.7 Setting ACTION Node/Process Completion Notification

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.

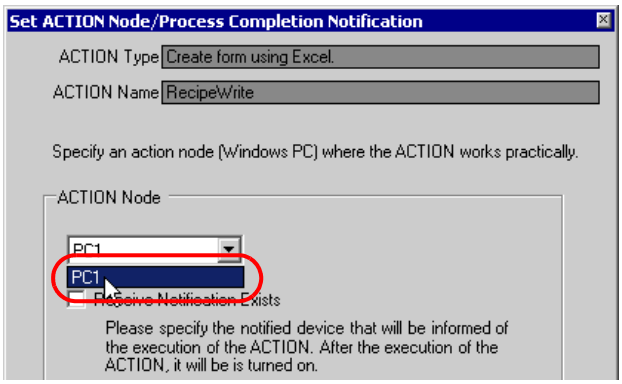
Ex.

- ACTION Node : PC1
- Receive Notification: OFF

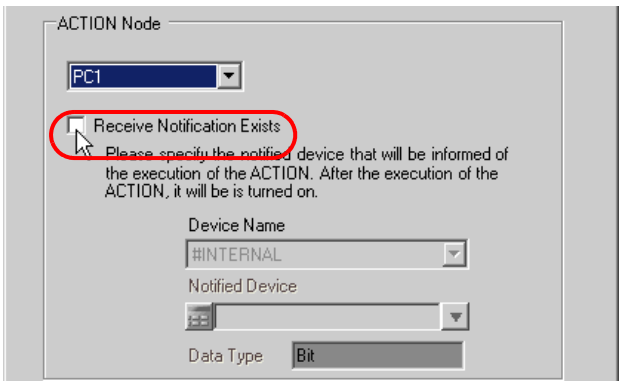
1 On the "Set ACTION Name/Parameter" screen, click the [Next] button.



2 Click the list button of [ACTION Node] and select "PC1" as a node where ACTION operates.



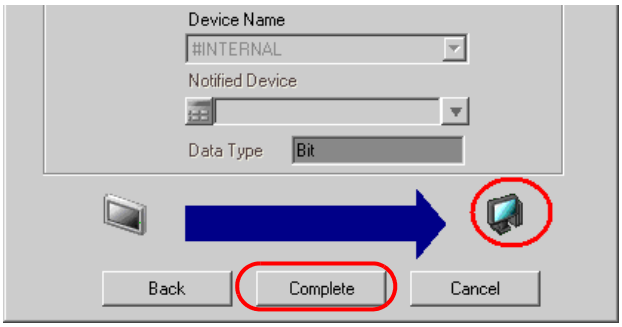
3 Turn off the [Receive Notification Exists] check box, if checked.



NOTE • Do not check "Receive Notification Exists".

4 Click the [Complete] button.

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



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

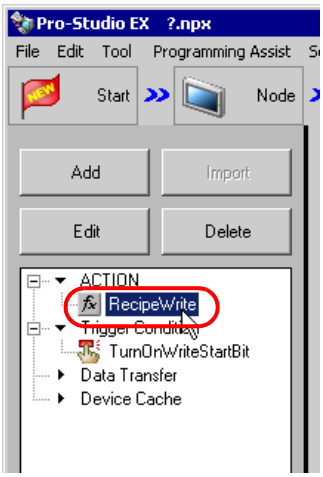
11.1.8 Verifying Setting Result

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

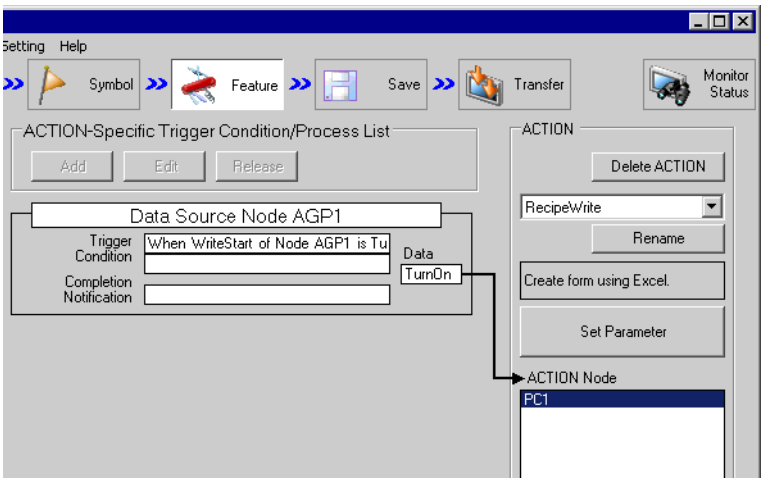
NOTE

- With the "Excel Report" ACTION, you cannot add, edit or delete a trigger condition in "ACTION-specific Trigger Condition/Process List". To change a preset condition, click the [Set Parameter] button, and select [Edit Template] to change data on Excel.

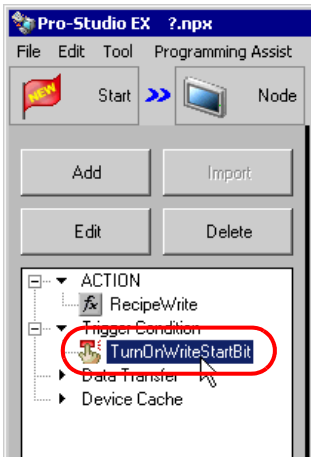
1 Select the ACTION name "Recipe Write" from the tree display on the left of the screen.



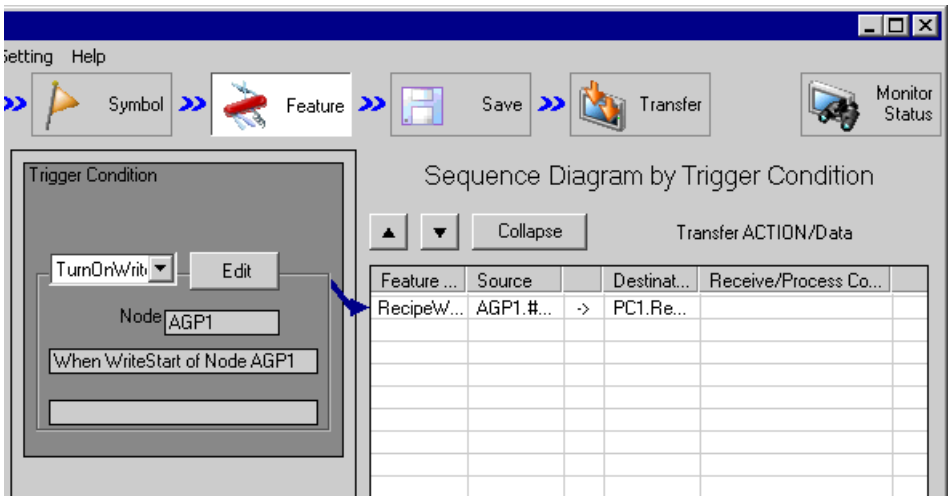
Confirm that the setting content appears on the right of the screen.



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.

11.1.9 Saving a Network Project File

This step saves the current settings as a network project file and reloads to 'Pro-Server EX'.

Refer to "24 Saving" for details about saving a network project file.

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\monitor.npx
- Title : EXCEL Report ACTION

11.1.10 Test Write

You can check if the settings are correct before transferring a created network project file to entry nodes.

NOTE
- You do not necessarily have to perform a test write.
  If you skip this, proceed to "11.1.11 Transferring a Network Project File".

IMPORTANT
- Note that the data will be actually written in the Device/PLC when you specify the device of Device/PLC as a write destination.
- To perform a test write, it is necessary that 'Pro-Server EX', to which a created network project file has been loaded, is running.

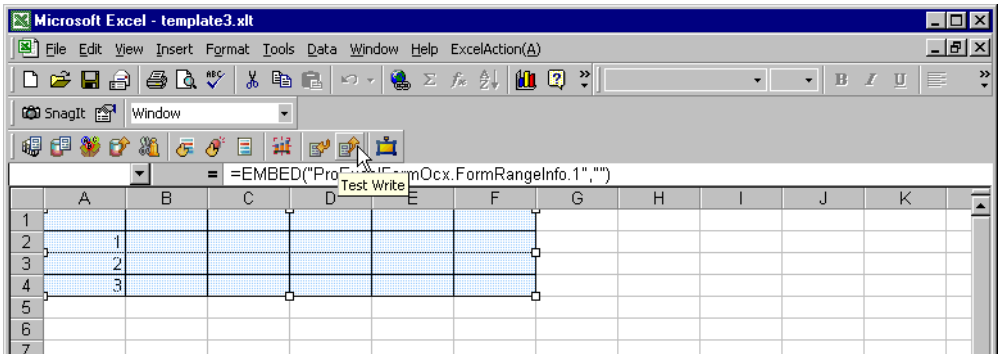
1 Click the [Feature] button.

2 Click "ACTION" from the tree display on the left of the screen, then click the [Edit] button.

3 On the "Set ACTION Name/Parameter" screen, click the [Click here to set the ACTION parameter] button.

4 On the "Create form using Excel" screen, click the [Edit Template] button.

5 With the ACTION area selected, click the [Test Write] icon.



At this point, data is written in the Device/PLC.

NOTE

- You can check that data is being written on the "Symbol Monitor" screen of "Status Monitor". For more details, refer to "27 Simply Confirming On-site Status".
- Refer to "11.4 Restrictions" for details about the restrictions on test writes.

11.1.11 Transferring a Network Project File

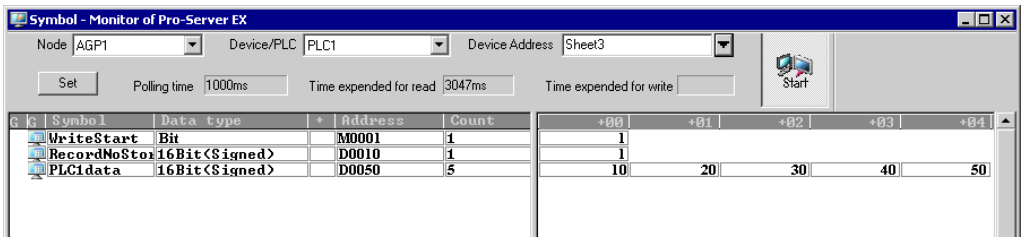
This step loads a saved network project file to 'Pro-Server EX' and then transfers to entry nodes.
Refer to "25 Transferring" for details about transferring a network project file.

NOTE

- Be sure to transfer a network project file. If not, ACTION will not work.

11.1.12 Executing ACTION

This step verifies that enabling a trigger condition activates ACTION and writes the data of the recipe sheet (File name: "Recipe write.xls") to the specified device of Device/PLC.



NOTE

- You can check the write/read status using the symbol or device monitor. For more details, refer to "27 Simply Confirming On-site Status".
- If error occurs, you can check the log in the Log Viewer. For more details, refer to "27.5 Monitoring System Event Logs".

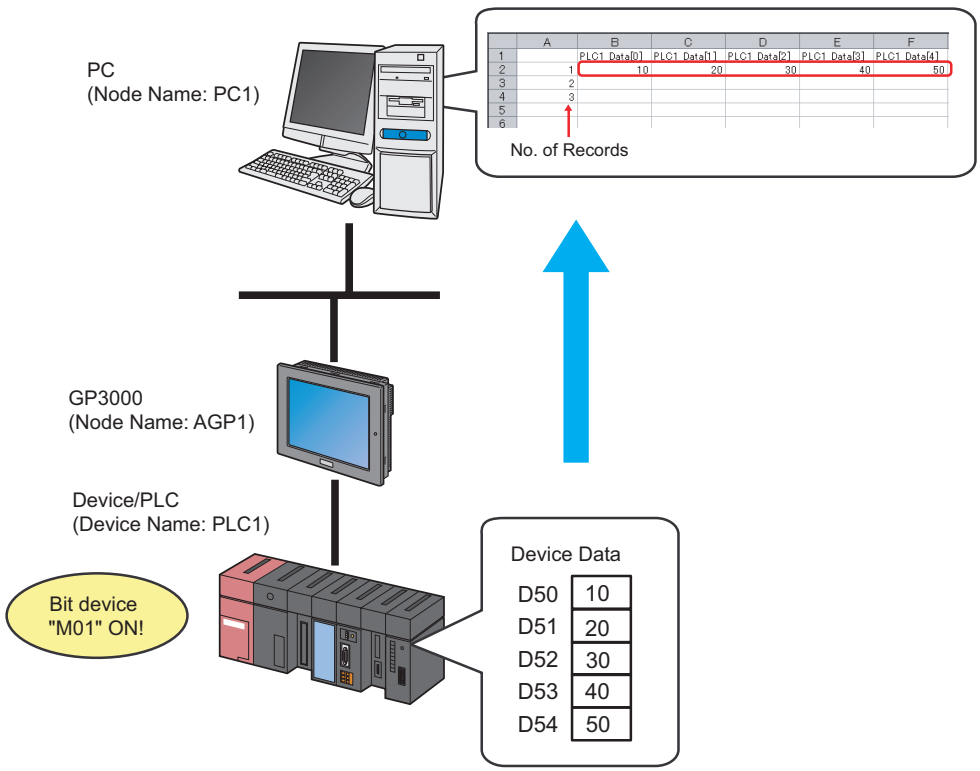
This is the end of the explanation of this ACTION.

11.2 Modifying Recipe Data from the Actual Values

[Action Example]

Detect the rising of the trigger device (bit device: "M01") of Device/PLC and read out the data of 5 devices (word device: address "D50" to "D54") of Device/PLC to an Excel recipe sheet.

(Example) Reading out the data to record No. "1" of a recipe sheet.



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

[Setting Procedure]

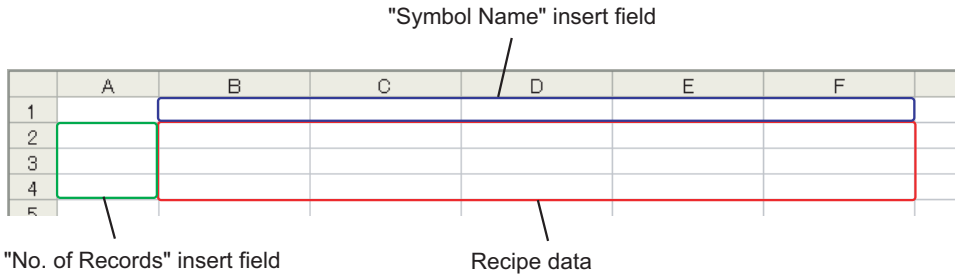
1	Creating a Recipe Sheet	This step creates a recipe sheet in 'Microsoft Excel' to write the data read from Device/PLC.
2	Starting 'Pro-Studio EX'	This step starts 'Pro-Studio EX'.
3	Registering Entry Nodes	This step registers the PC and the GPs as entry nodes.
4	Registering Symbols	This step registers as a symbol the device of Device/PLC from which data is read.
5	Specifying a Recipe Sheet and its Output File	This step sets the following items: • Specify a recipe sheet • Specify an output file
6	Setting the Contents of a Recipe Sheet	This step sets the following items: • Set a device to read • Set a recipe write range
7	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.
8	Verifying Setting Result	This step saves the current settings as a network project file and reloads.
9	Saving a Network Project File	This step saves the current settings as a network project file and reloads.
10	Transferring a Network Project File	This step transfers a saved network project file to the GP.
11	Executing ACTION	This step verifies that the data of Device/PLC is written in the specified area of a recipe sheet when the preset trigger condition has become effective.

11.2.1 Creating a Recipe Sheet

This step creates a recipe sheet to write the data read from Device/PLC.

1 Start 'Microsoft Excel' and create the recipe sheet below in Sheet 1.

[Creation Example]

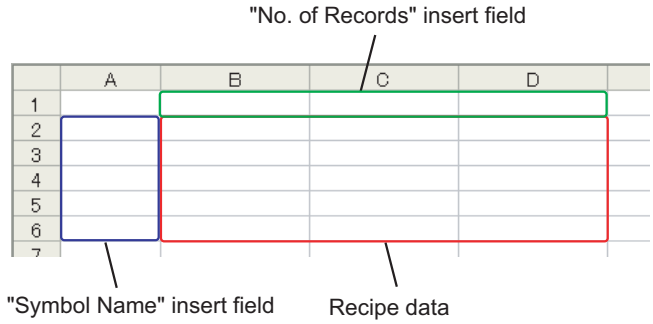


Leave both spaces for "Symbol Name" (Cells B1 to F1) and those for "Record No." (Cells A2 to A4) blank for these will be automatically allotted and filled in after completing the setting.

2 Save the recipe sheet with the file name "recipe.xls" on PC desktop after creating.

NOTE

- You can create a recipe sheet in the direction (horizontal) as shown below.



11.2.2 Starting 'Pro-Studio EX'

This step starts 'Pro-Studio EX'.

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

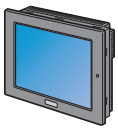
11.2.3 Registering Entry Nodes

This step registers the PC and the GP connected with network as nodes.

Refer to "30 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

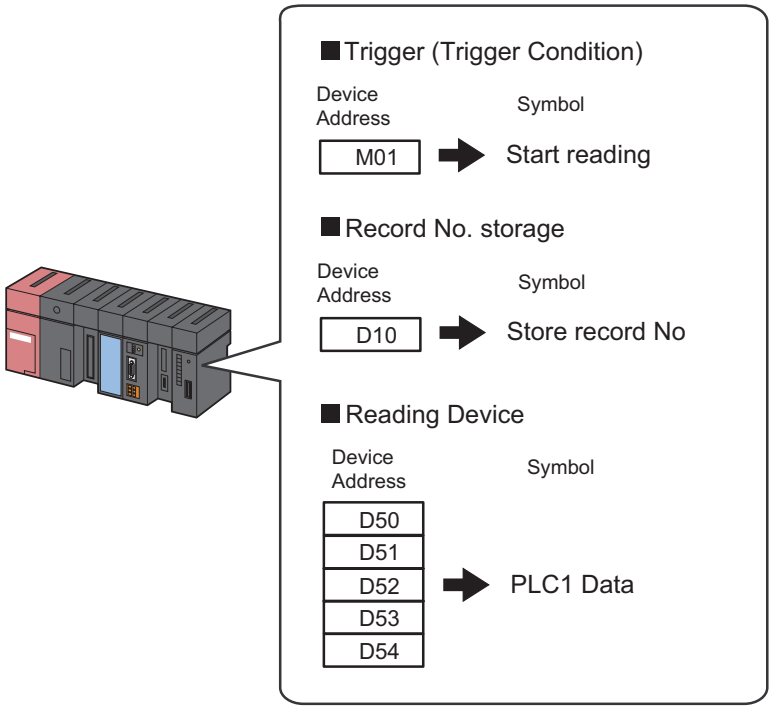
Ex.

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

11.2.4 Registering Symbols

This step registers as a symbol the device address of Device/PLC to which device data is written.

Refer to "31 Symbol Registration" for details about symbols.



Ex.

- Trigger (Trigger Condition)

Setting item	Setting content
Symbol Name	Start reading
Data Type	Bit
Device address for symbol registration	"01" of Device/PLC (PLC1)
No. of Devices	1

- Record No. Storage

Setting item	Setting content
Symbol Name	Record No. Storage
Data Type	16Bit (Unsigned)
Device address for symbol registration	"10" of Device/PLC (PLC1)
No. of Devices	1

- Reading Device

Setting item	Setting content
Symbol Name	PLC1 data
Data Type	16Bit (Signed)
Device address for symbol registration	"D50" to "D54" of Device/PLC (PLC1)
No. of Devices	5

11.2.5 Specifying a Recipe Sheet and its Output File

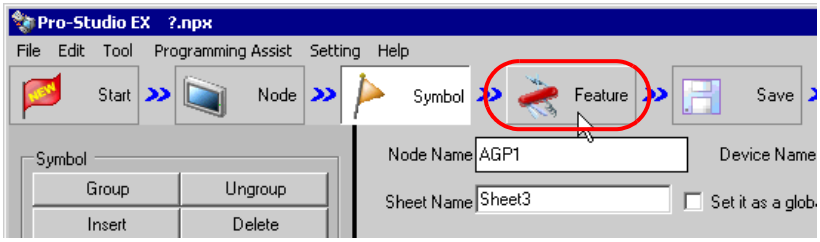
This step specifies the pre-created recipe sheet and its output file.

Refer to "11.3 Setting Guide" for more details.

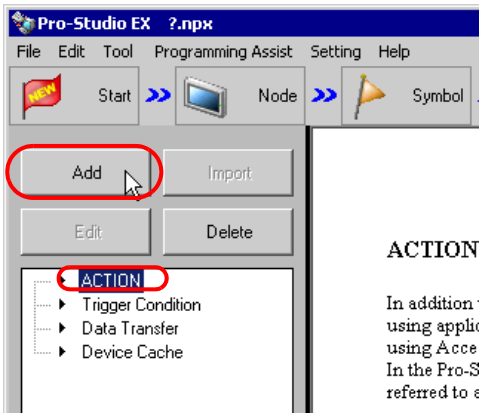
Ex.

Setting item		Setting content
Specify a Template	Template File	C:\Documents and Settings\Administrator\Desktop\recipe.xls
Output File	Folder Name	C:\Documents and Settings\Administrator\Desktop
	File Name	Recipe read.xls
	Start with the output file displayed	Checked

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



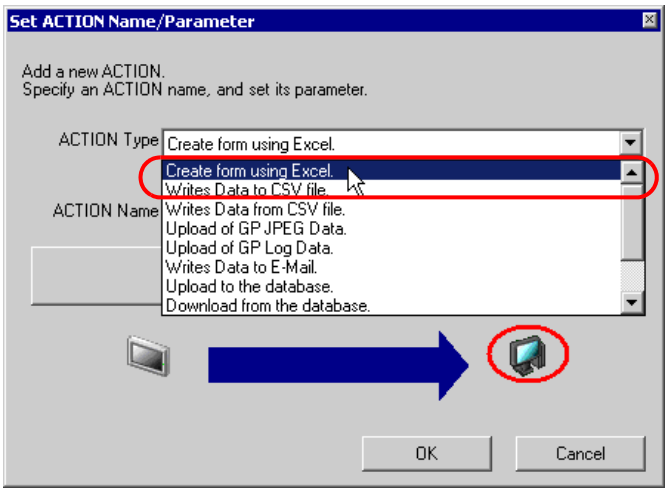
2 Select [ACTION] from the tree display on the left of the screen, then click the [Add] button.



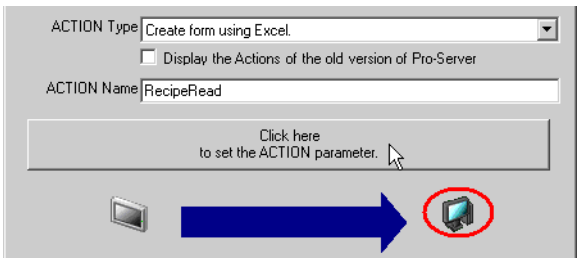
3 Click the [ACTION Type] list button, and select "Create form using Excel".

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

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

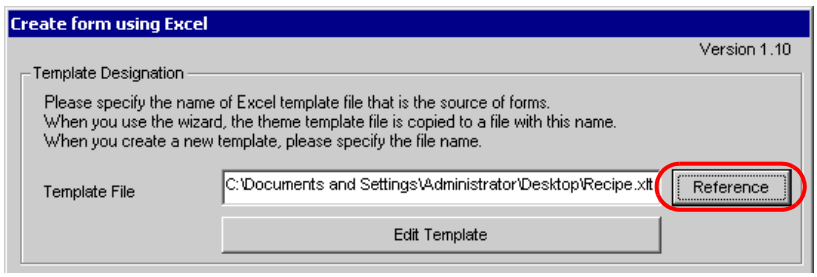


4 Click the [Click here to set the ACTION parameter] button.

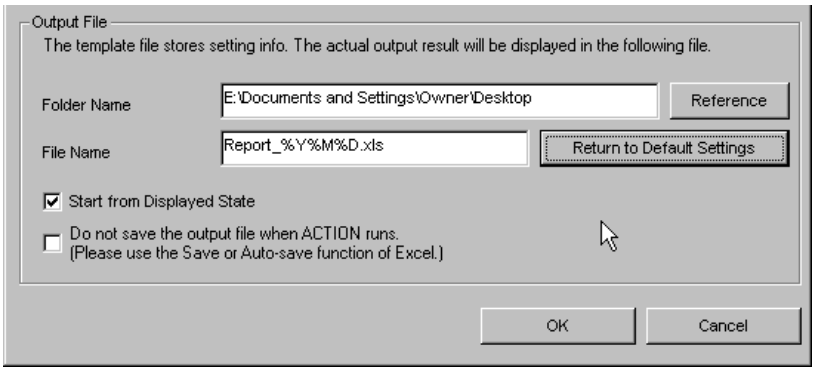


5 Make settings regarding an Excel template and its output file.

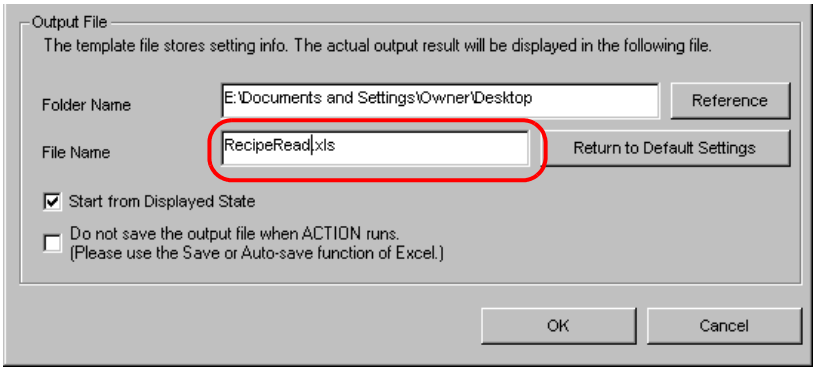
1) Click the [Reference] button of [Template File] to set the template file "templete.xlt" which you created.



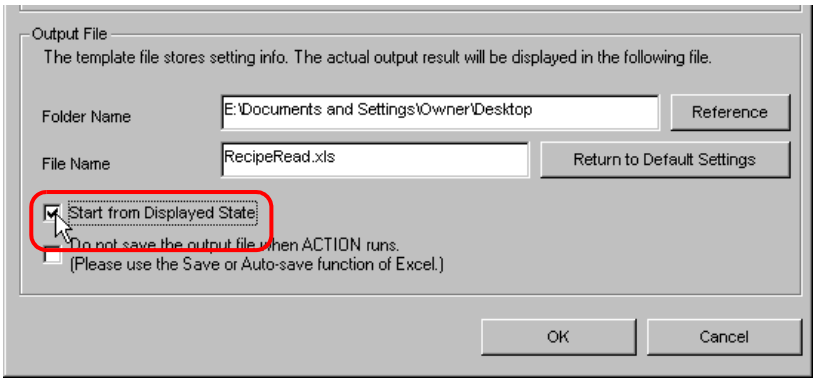
2) Click the [Reference] button of [Folder Name] and specify "Desktop" as a folder to save the output file.



3) Set the file name "RecipeRead.xls" in the [File Name] field for the output file to set.



4) Check the [Start from Displayed State] check box.



NOTE

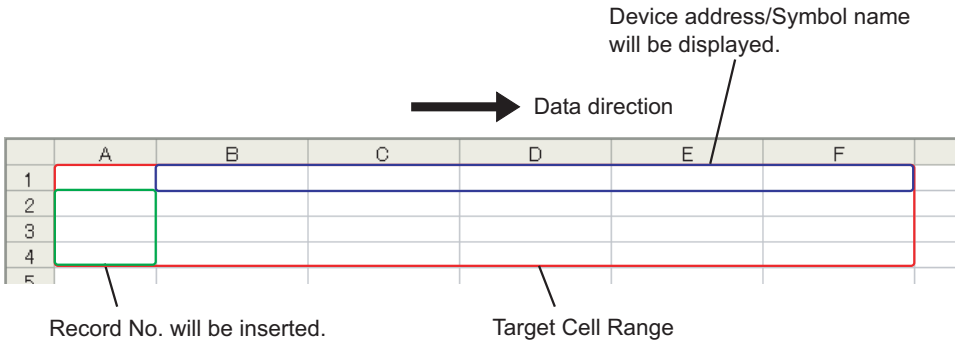
- If you check [Start from Displayed State], you can read/write data with an output file displayed. This is useful if you need to confirm data immediately.

11.2.6 Setting the Contents of a Recipe Sheet

This step sets the contents of a recipe sheet to write the data read from Device/PLC.

The example below shows the setting of data read area (recipe area) of a recipe sheet.

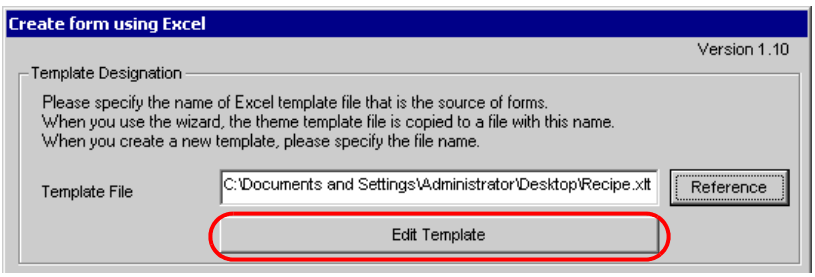
Refer to "11.3 Setting Guide" for more details.



Ex.

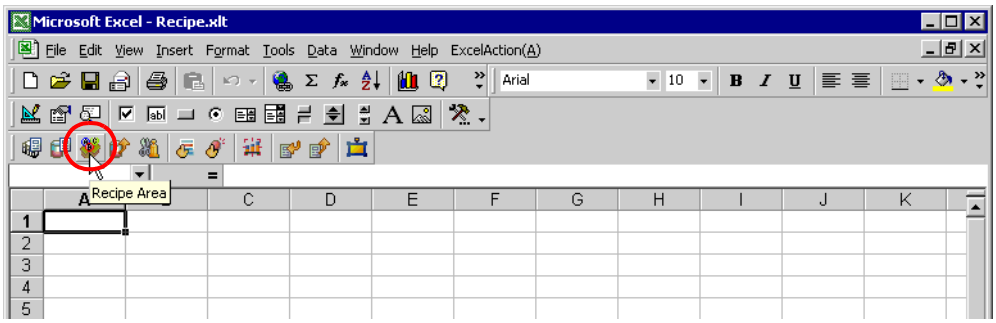
Setting item	Setting content
Entry Node	AGP1
Device Name	PLC1
Device Address/Symbol Group	PLC1 data
Add Device Address/ Symbol Name	Checked
Target Cell Range	A1 to F4
Data Direction	Specify the direction of record No.s as "Vertical".
Trigger Condition Name	Turn on write start bit
Trigger Condition	When "Start writing" (M01) is ON

1 Click the [Edit Template] button.



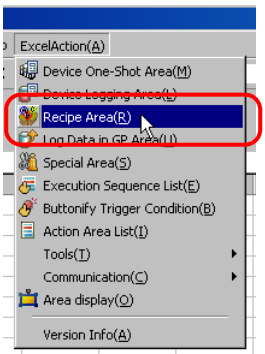
2 Set a data read area.

1) Click the [Recipe Area] icon on Excel.

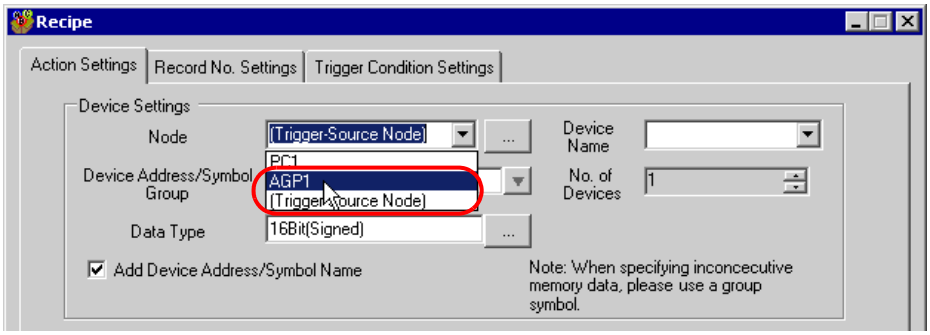


NOTE

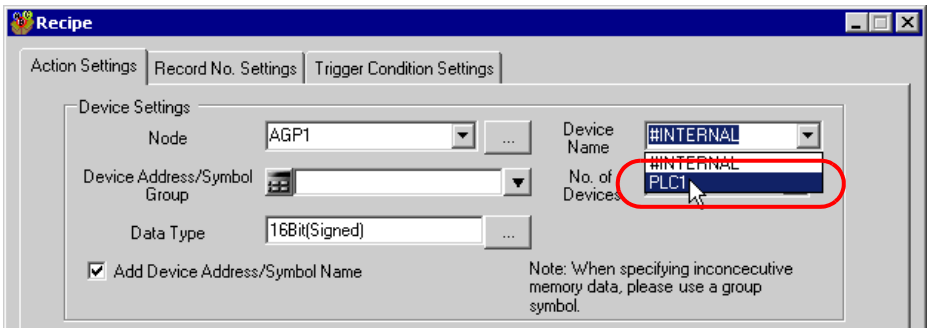
- Selecting "Recipe Area" from [Excel Action] of the menu displays the same screen.



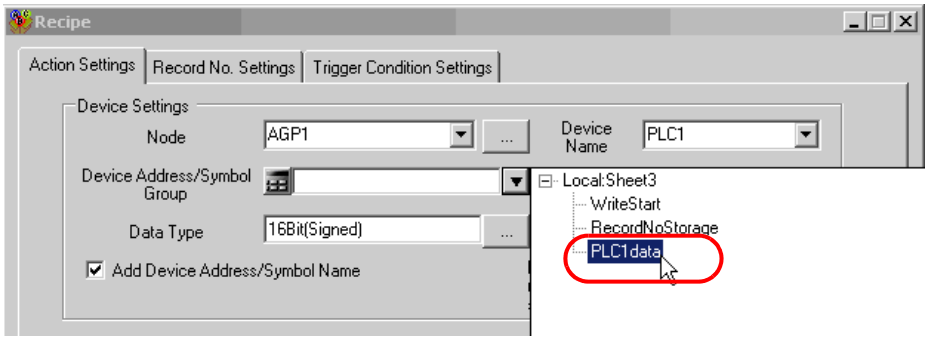
2) Click the list button of [Node] and select "AGP1" as a data transfer source node.



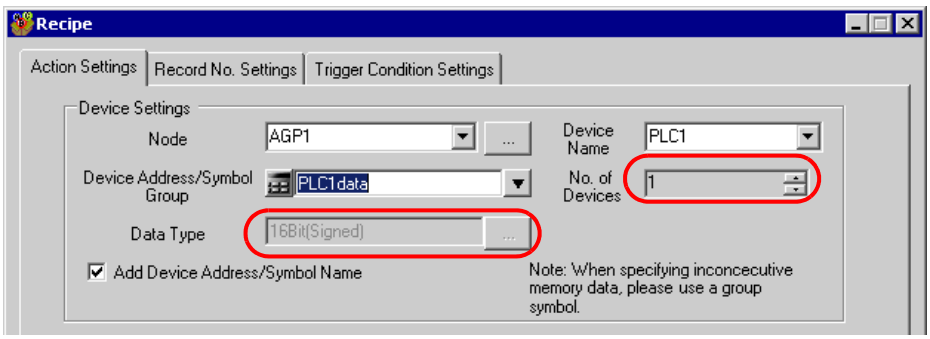
3) Click the list button of [Device Name] and select "PLC1" as a data transfer source device.



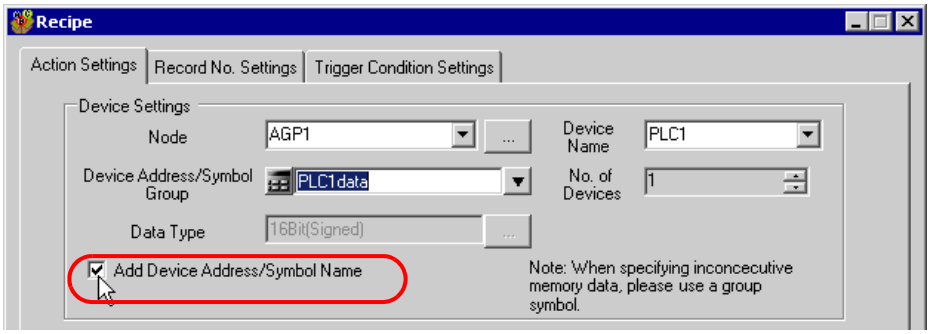
4) Click the list button of [Device Address/Symbol Group] and select "PLC1 data" as a symbol of the data to read out.



The device number "1" will be automatically entered in [No. of Devices], and "16Bit(Signed)" in [Data Type].



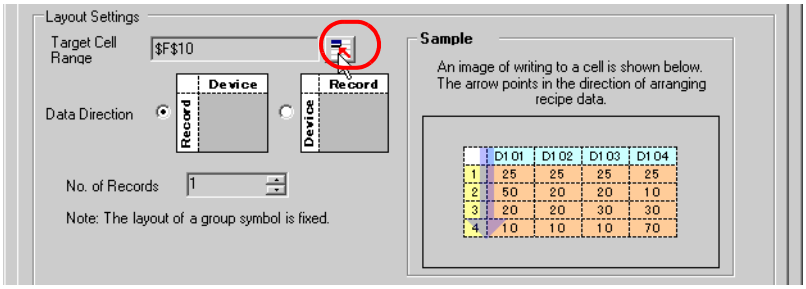
5) Check [Add Device Address/Symbol Name].



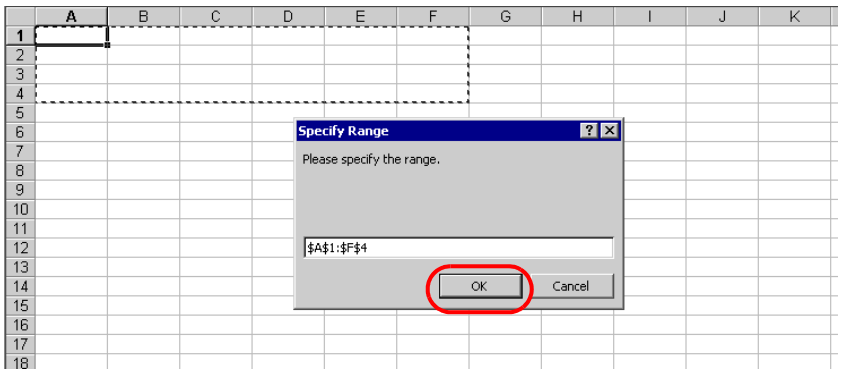
NOTE

- After the procedure of "11.2.9 Saving a Network Project File" described later, open the template again, and open the recipe setting dialog box. After confirming that the "Add Device Address/ Symbol Name" checkbox has been checked, click the [OK] button. Then, the device address/ symbol name will be reflected in the template.

6) Click the cell range specify button of [Target Cell Range].



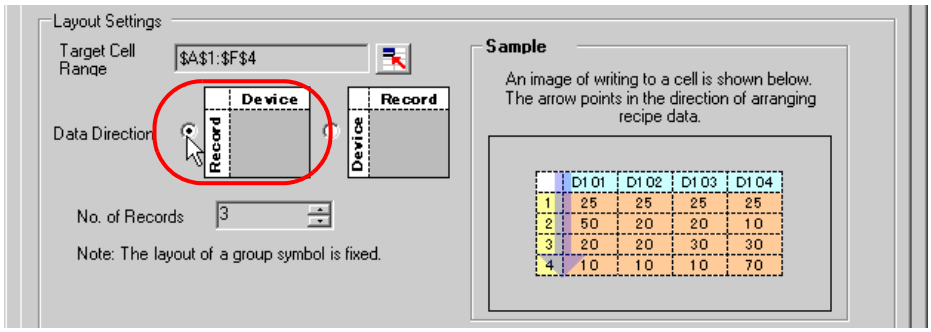
7) Drag the mouse to specify the data read area (cells A1 to F4). Then click the [OK] button.



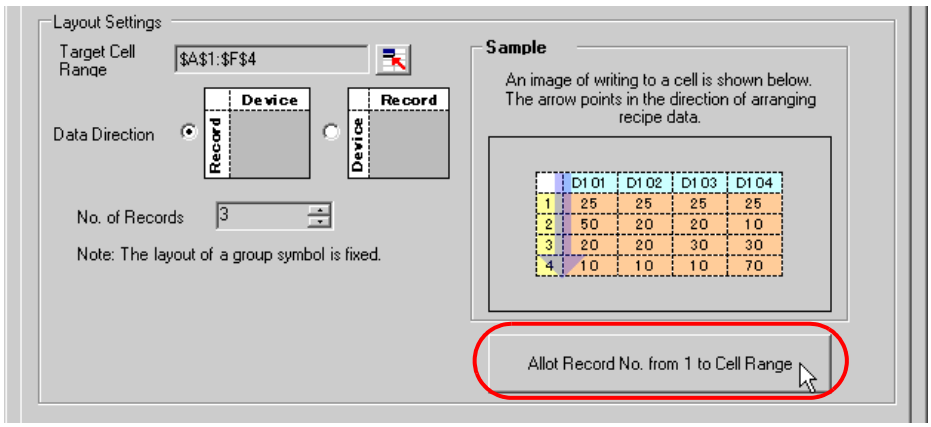
NOTE

- When specifying the area, cover the cells to insert record No.s and Device Address/Symbol Names.

8) Select "Vertical" of [Data Direction].



9) Click [Allot Record No. from 1 to Cell Range].



NOTE

- Specify the recipe data to write in Device/PLC with record No.s This example allots record No.s to the recipe data.

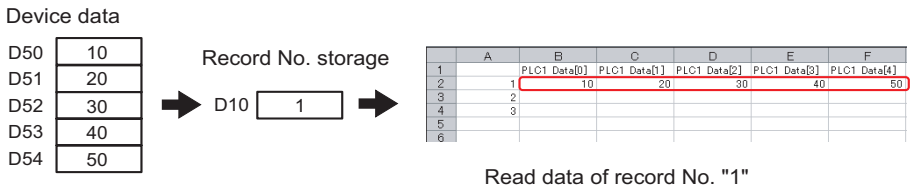
Record No.s and ruled lines are automatically added on the recipe sheet.

	A	B	C	D	E	F	G
1							
2	1						
3	2						
4	3						
5							

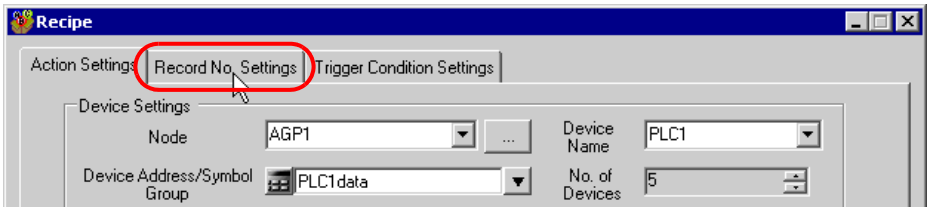
3 Specify a record No.

Specify the recipe data area by entering a record No. in the symbol "Record No. storage" from GP or Device/PLC.

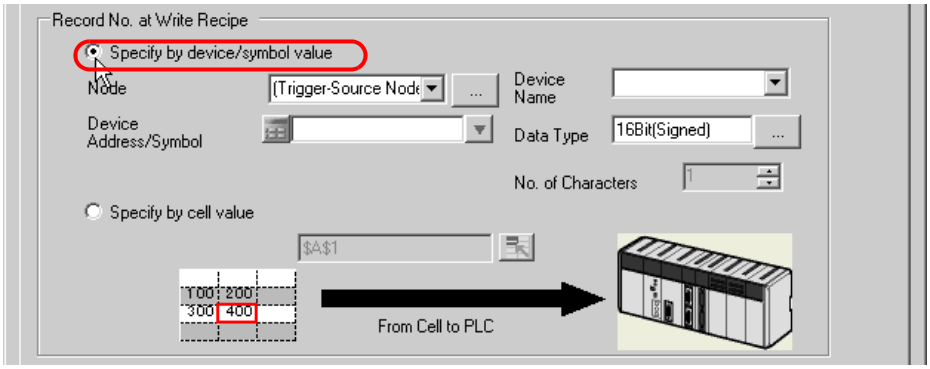
(Example) In case of storing device data "1" in the device "Record No. storage".



1) Click the [Record No. Settings] tab.



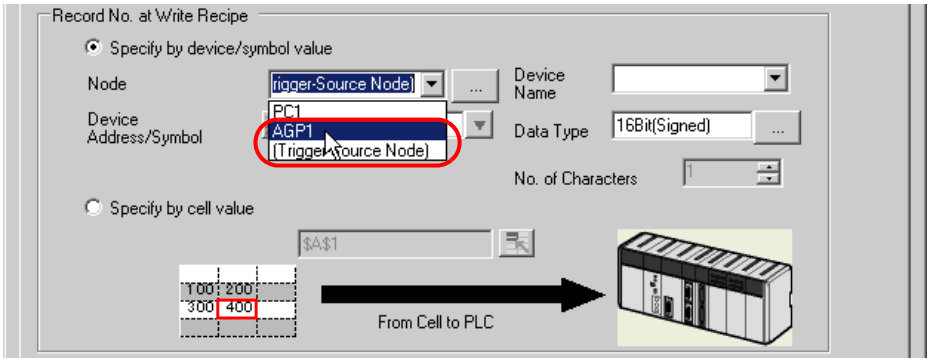
2) Click "Specify by device/symbol value" in [Record No. at Write Recipe].



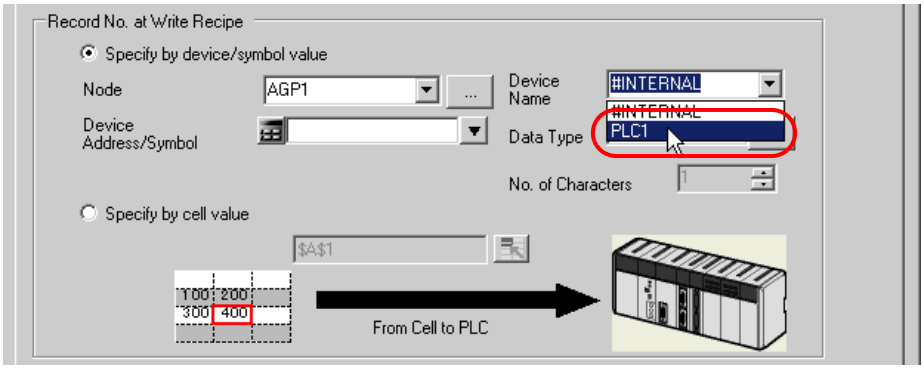
NOTE

- If you select [Specify by cell value], specify any cell on Excel. The number entered in the cell is recognized as the record No.
  Refer to "11.3 Setting Guide" for more details.

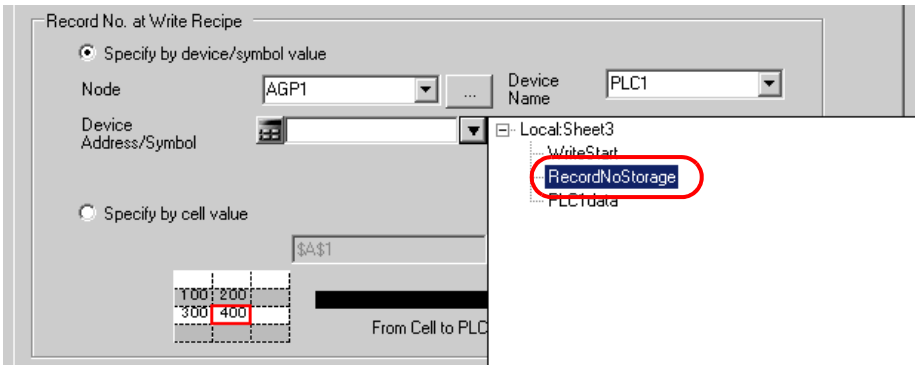
3) Click the list button of [Node] and select the node name "AGP1" which has the Device/PLC to store the record No.



4) Click the list button of [Device Name] and select the Device/PLC "PLC1" to store the record No.



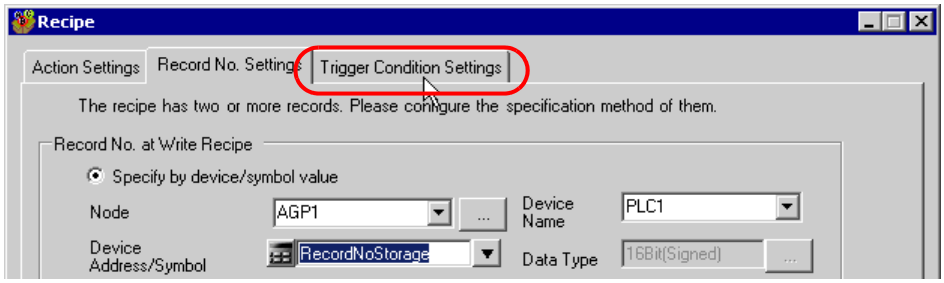
5) Click the list button of [Device Address/Symbol] and select the symbol name "Record NoStorage" of the device to store the record No.



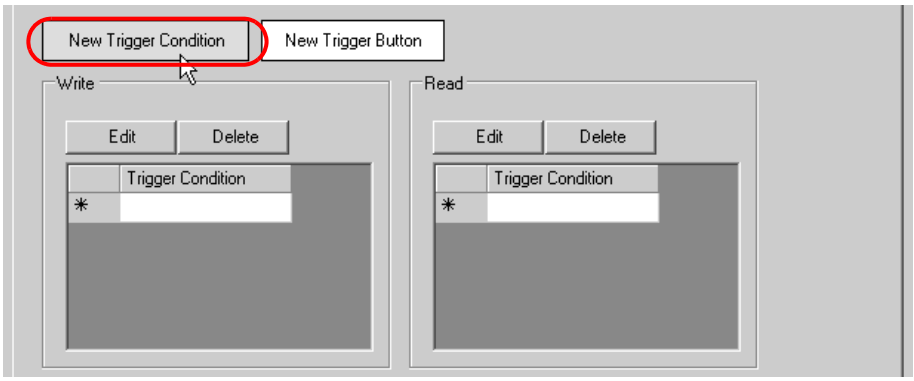
The device data type "16Bit(Unsigned)" will be automatically entered in [Data Type].

4 Set trigger conditions.

1) Click the [Trigger Condition Settings] tab.



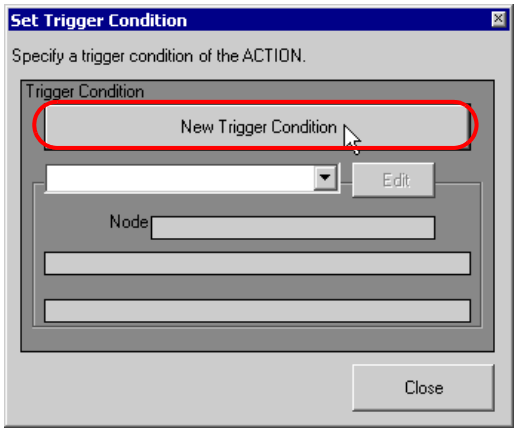
2) Click the [New Trigger Condition] button.



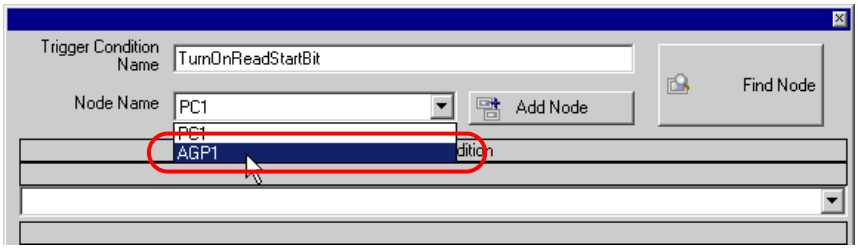
NOTE

- You can also activate ACTION by placing a button on Excel from [New Trigger Button] and clicking it. Refer to "11.3 Setting Guide" for more details.

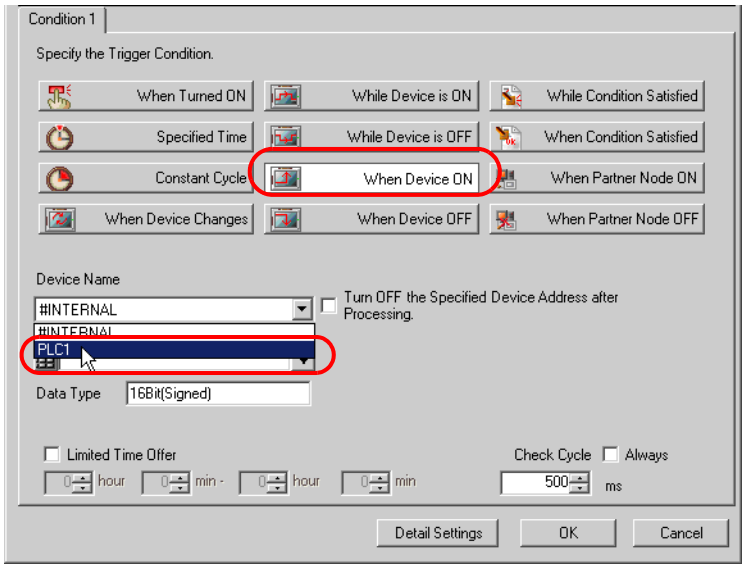
3) Click the [New Trigger Condition] button.



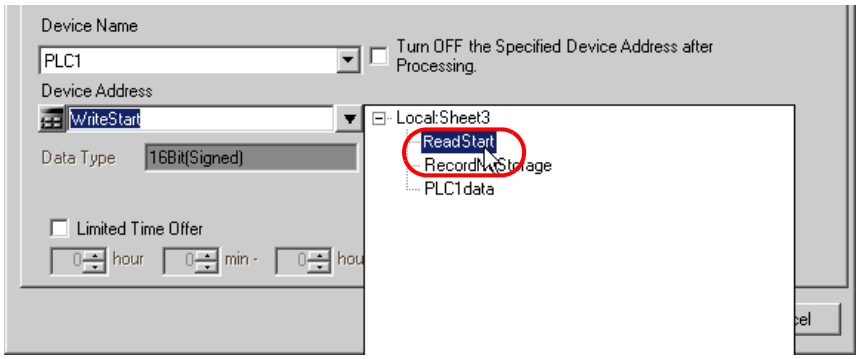
4) Enter the trigger condition name "TurnOnReadStartBit" in [Trigger Condition Name], and select "AGP1" in [Node Name] as a name of the data transfer source.



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

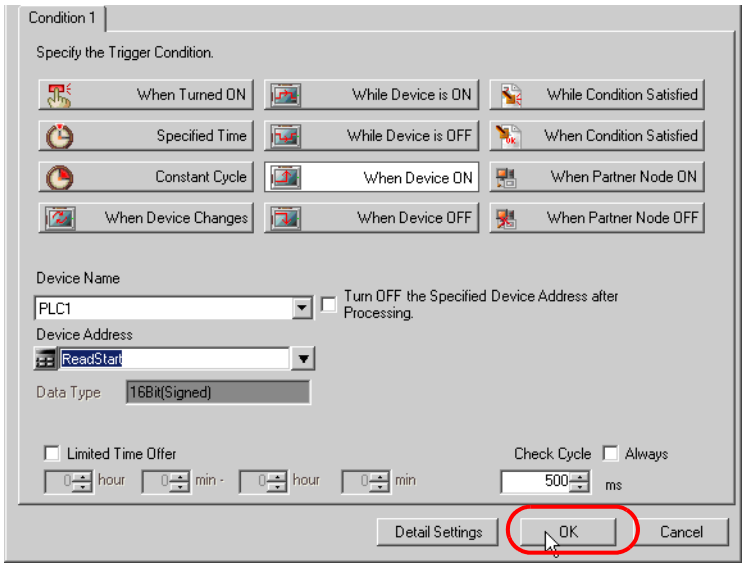


6) Click the [Device Address] list button and select "ReadStart" for the device symbol name which serves as the trigger.

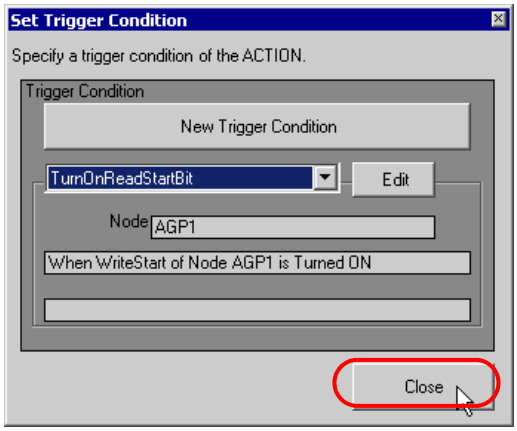


[Data Type] automatically appears after selection, too.

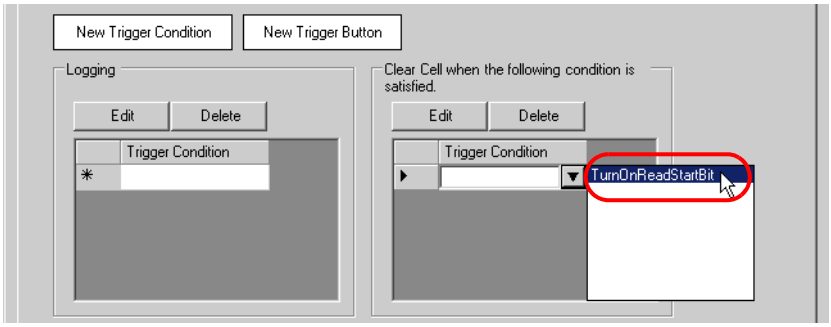
7) Click the [OK] button.



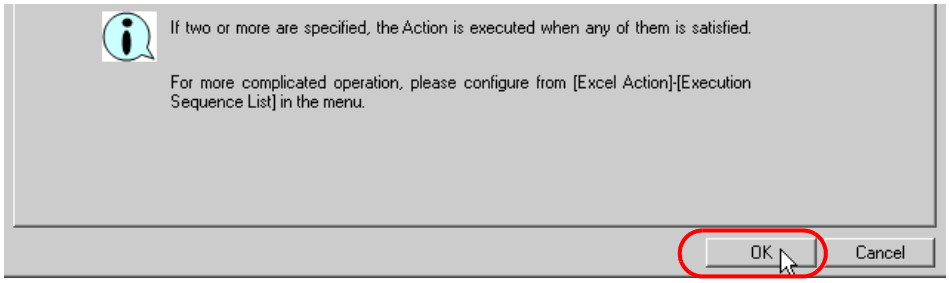
8) Click the [Close] button.



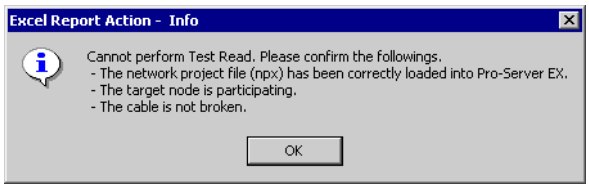
9) Click the blank line of [Clear Cel when the following condition is satisfied] and select "TurnOnReadStartBit" as a trigger condition.



10) Click the [OK] button.



11) Click the [OK] button.



NOTE

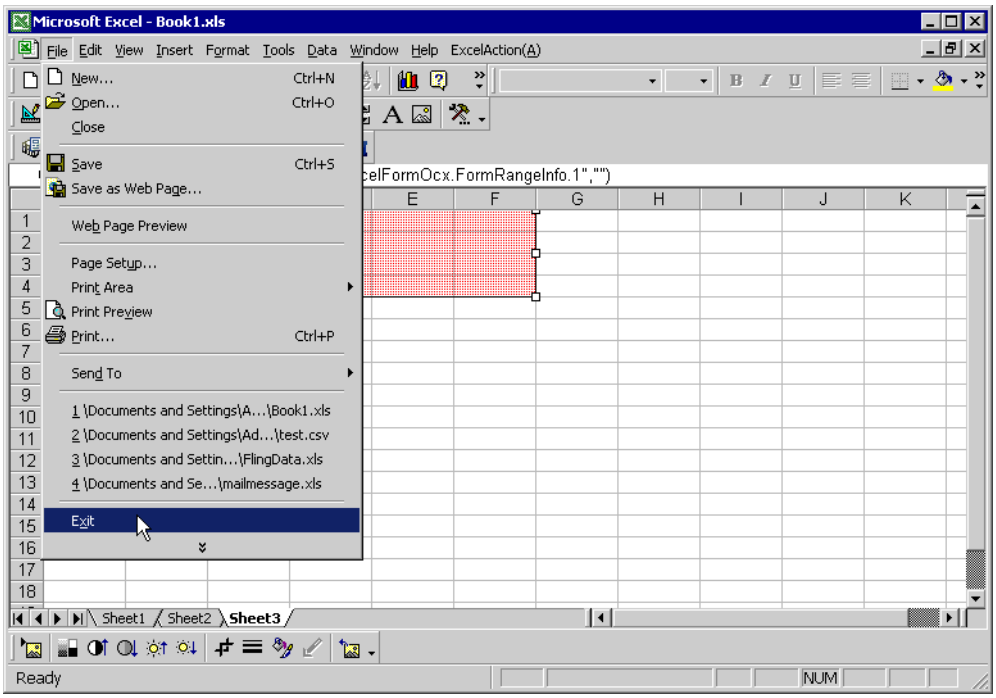
- Here the dialog box will appear because no network project file is loaded to 'Pro-server EX'. This is not a problem, however.
  The file will be loaded in "11.2.9 Saving a Network Project File" mentioned later.

This is the end of the content settings of a recipe sheet.

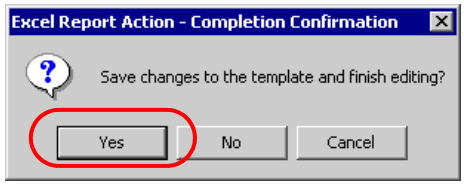
NOTE

- Can display Data/Time on an Excel sheet.
  ☞ "5.2 Writing Date/Time in a Form"
- Can display arrows on an Excel sheet.
  ☞ "5.3 Writing Arrows in a Form"
- Can display a trigger source node on an Excel sheet.
  ☞ "5.4 Writing Trigger Source Node Names in a Form"

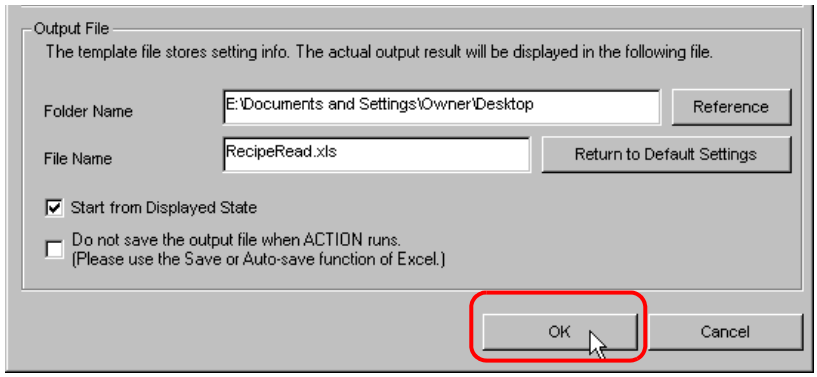
5 Close 'Excel'.



The following dialog box will appear, asking you if you want to save changes before closing. Click the [Yes] button.



6 On the "Create form using Excel" screen, click the [OK] button.



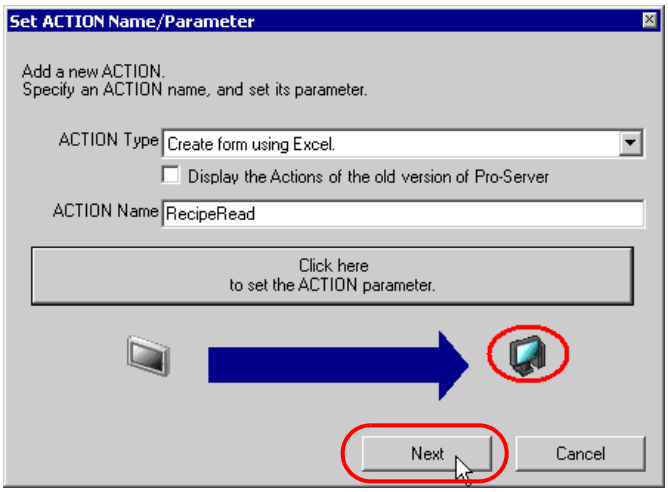
11.2.7 Setting ACTION Node/Process Completion Notification

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.

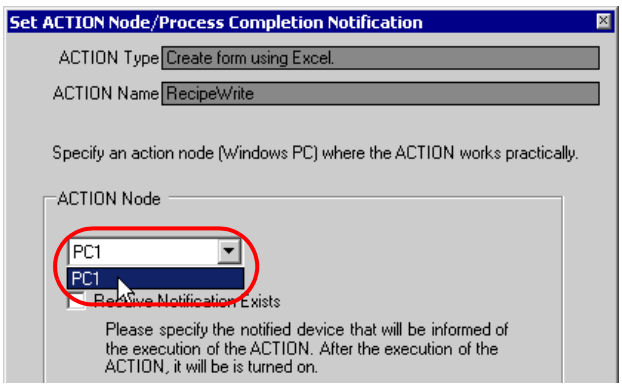
Ex.

- ACTION Node : PC1
- Receive Notification: OFF

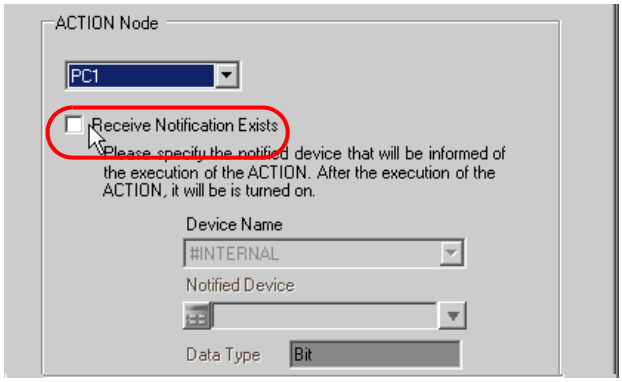
1 On the "Set ACTION Name/Parameter" screen, click the [Next] button.



2 Click the list button of [Action Node] and select "PC1" as a node where ACTION operates.



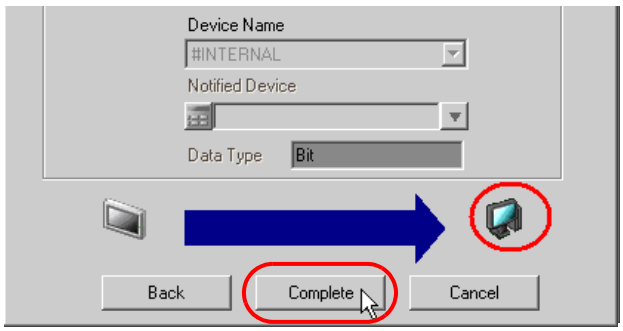
3 Turn off the check box of [Receive Notification Exists], if checked.



NOTE • Do not check "Receive Notification Exists".

4 Click the [Complete] button.

The "ACTION Node/Process Completion Notification Settings" screen will disappear. On the left of the screen, the name of ACTION you set will appear.



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

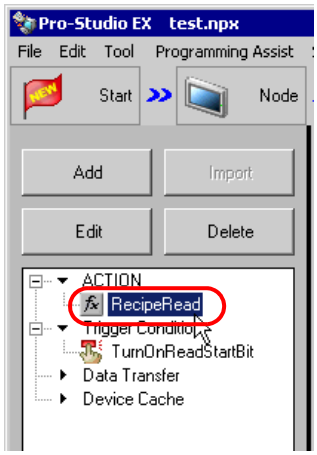
11.2.8 Verifying Setting Result

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

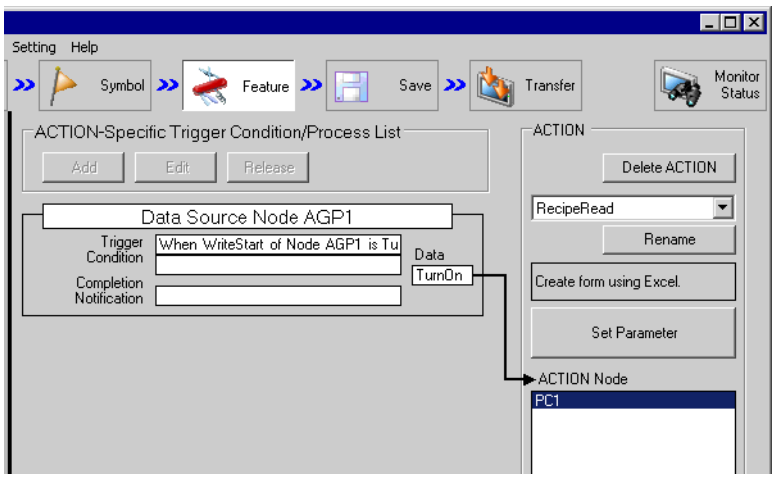
NOTE

- In case of the "Excel Report" ACTION, you cannot add, edit or delete trigger conditions from "Trigger Condition/Process List per ACTION". To change the settings, click the [Parameters Settings] button and change the settings in [Edit Template] on Excel.

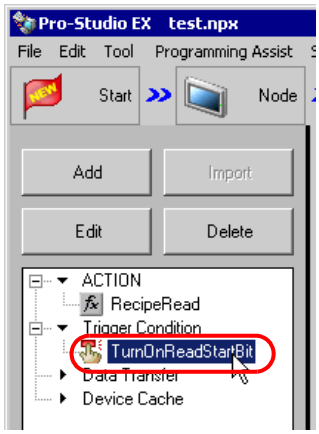
1 Select the ACTION name "RecipeRead" from the tree display on the left of the screen.



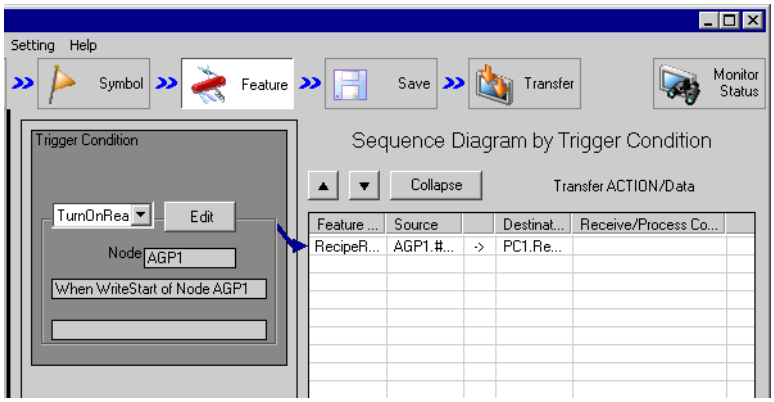
Confirm that the setting content appears on the right of the screen.



2 Select the trigger condition name "TurnOnReadStartBit" 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.

11.2.9 Saving a Network Project File

This step saves the current settings as a network project file and reloads to 'Pro-Server EX'.

Refer to "24 Saving" for details about saving a network project file.

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\monitor.npx
- Title : EXCEL Report ACTION

11.2.10 Test Read

You can check if the settings are correct before transferring a created network project file to entry nodes.

When executing ACTION, the setting data is output to an output file. However, when executing a test read, it is reflected in a template file.

NOTE
- You do not necessarily have to perform a test read.
  If you skip this, proceed to "11.2.11 Transferring a Network Project File".

IMPORTANT
- To perform a test read, it is necessary that 'Pro-Server EX', to which a created network project file has been loaded, is running.

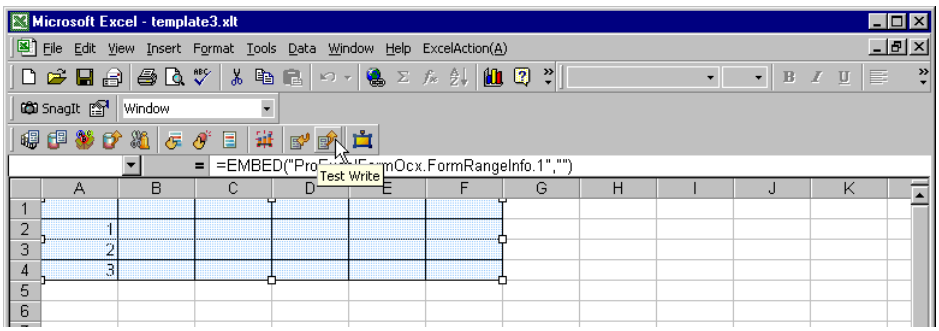
1 Click the [Feature] button.

2 Click "ACTION" from the tree display on the left of the screen, then click the [Edit] button.

3 On the "Set ACTION Name/Parameter" screen, click the [Click here to set the ACTION parameter] button.

4 On the "Create form using Excel" screen, click the [Edit Template] button.

5 With the ACTION area selected, click the [Test Read] icon.



The setup contents will be read in the template.

NOTE
- Refer to "6.4 Restrictions" for details about the restrictions on test reads.

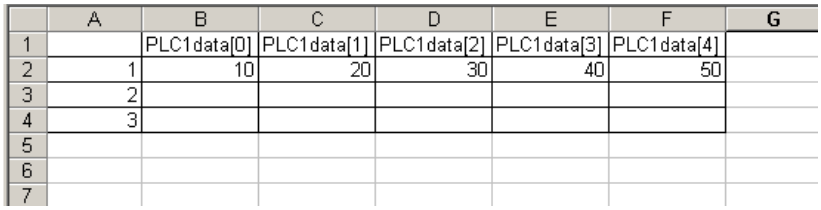
11.2.11 Transferring a Network Project File

This step loads a saved network project file to 'Pro-Server EX' and then transfers to entry nodes.
Refer to "25 Transferring" for details about transferring a network project file.

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

11.2.12 Executing ACTION

This step verifies that enabling a trigger condition activates ACTION, opens a recipe sheet (file name: "recipe read.xls"), and then writes the device data in the specified location on the sheet.



	A	B	C	D	E	F	G
1		PLC1data[0]	PLC1data[1]	PLC1data[2]	PLC1data[3]	PLC1data[4]	
2	1	10	20	30	40	50	
3	2						
4	3						
5							
6							
7							

NOTE
- If error occurs, you can check the log in the Log Viewer. For more details, refer to "27.5 Monitoring System Event Logs".

This is the end of the explanation of this ACTION.

11.3 Setting Guide

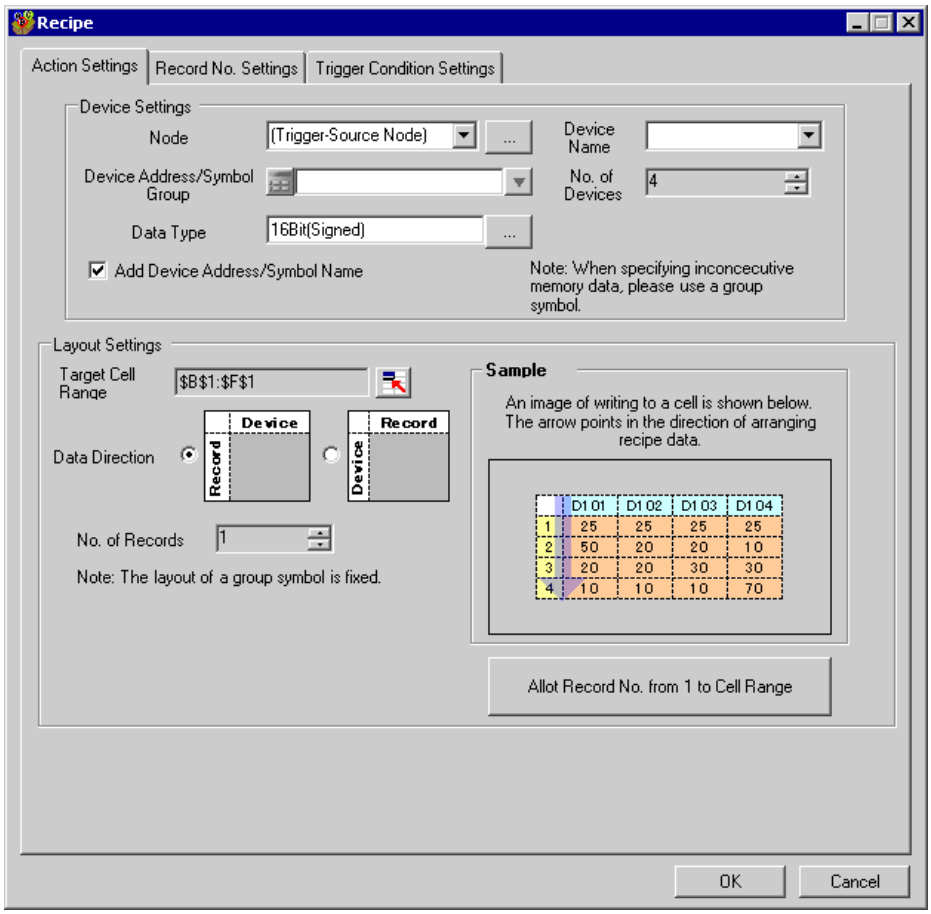
This section explains how to set each screen in detail.

11.3.1 "Creating form using Excel" Screen

☞"■ "Creating form using Excel" Screen"

11.3.2 "Recipe" Screen

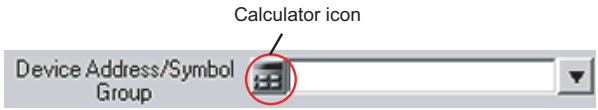
■ "Action Settings" Tab



<table>
<tr><th colspan="2">Setting item</th><th>Setting content</th></tr>
<tr><td rowspan="3">Device Settings</td><td>Node</td><td>Selects a node which has a device to read/write data

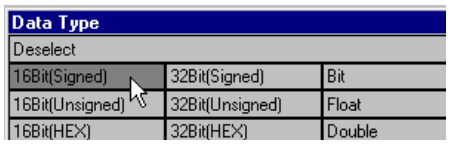
NOTE
• Clicking the [...] button can retrieve or add entry nodes.
• Selecting "(Trigger-Source Node)" will select the entry node that has triggered the action.</td></tr>
<tr><td>Device Name</td><td>Selects a node which has a device to read/write data

NOTE
• It is not necessary to set when the entry nodes are GP Series nodes and Pro-Server EX nodes.</td></tr>
<tr><td>Device Address/ Symbol Group</td><td>Sets the device address or symbol to be used.
• When specifying a device address:
Enter directly from the Calculator icon.

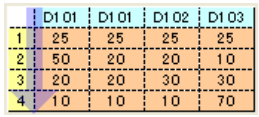
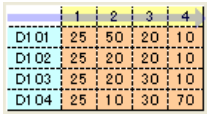
• When specifying a symbol:
Select the symbol by clicking the list button.

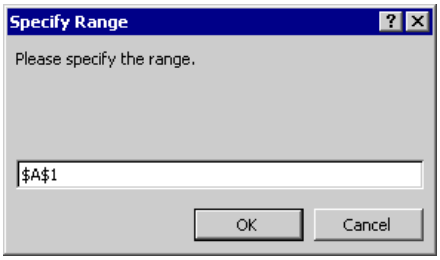
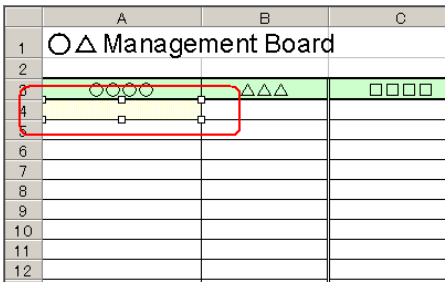
NOTE
• When setting non-sequential devices, be sure to specify a group symbol.</td></tr>
<tr><td>Data Type</td><td>• When specifying a device address:
Specify the data type.

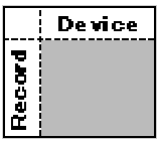
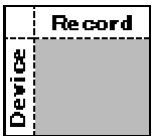
 

• When specifying a symbol:
Data type automatically appears.</td></tr>
</table>

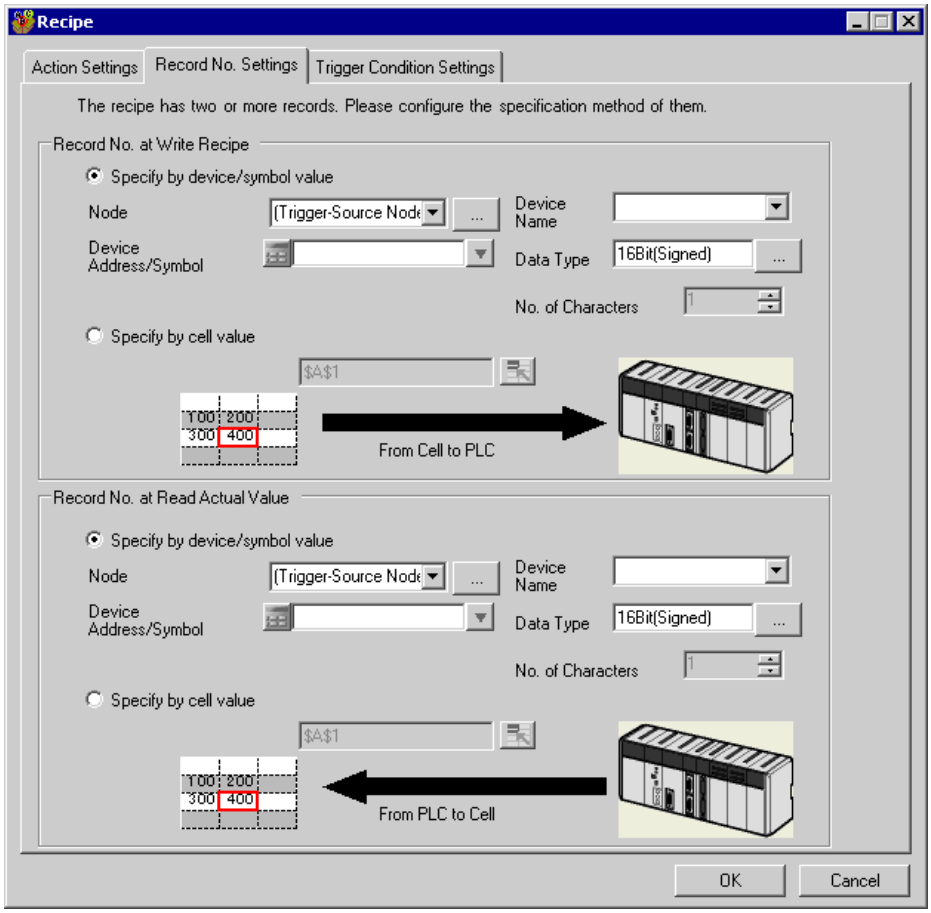
<table>
<tr><th colspan="2">Setting item</th><th>Setting content</th></tr>
<tr><td rowspan="2">Device Settings</td><td>No. of Devices</td><td>Displays the number of devices to read/write, automatically calculating it from the selected cell range.
NOTE
• If a group symbol has been selected, the number will be "1".</td></tr>
<tr><td>Add Device Address/ Symbol Name</td><td>Displays Device Address, Symbol Name, and/or Group Symbol Name above or on the left of the cells where the data is written, serving as a guide to identify the data.
For the display location, specify above or left in "Data Direction" mentioned later.

NOTE
Refer to the image figure shown in the lower right of the dialog box.
• Vertical
 
• Horizontal
  </td></tr>
</table>

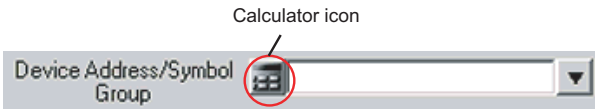
Setting item		Setting content
Layout Settings	Target Cell Range	Specifies the cell range to which data will be written/read. Clicking the button can select the cell range on Excel. Drag the mouse to select the cell range. **NOTE** • Setting range of cells: Rows 1 to 65536, Columns 1 to 256 • Instead of using the mouse, you can type the cell range. Click the Excel screen, enter the cell range on the "Specify Range" screen, and then click the [OK] button.  • When you specify the cell range including 1501 lines or more, only the top-left cell of the selected range seems to be specified on the display.  • The useful function is available to check the specified cell range (Action area).Refer to "■ Action Area List" in "5.1.2 Setting Guide".

Setting item		Setting content
Layout Settings	Data Direction	Sets the data write direction when selecting multiple cells.  • (Vertical) Sequentially from top to bottom.  • (Horizontal) Sequentially from left to right . **NOTE** • The write image of the content set in "Layout Settings" appears in [Sample].
	No. of Records	Sets and displays the number of records used for a recipe, automatically calculating it from the specified cell range.
Allot Record No. from 1 to Cell Range		Automatically inserts record No.s in the area specified in [Data Direction] of [Target Cell Range]. It is possible to enter record No.s directly on Excel, but this could cause erroneous operation due to typing error. For this, we recommend entering with the [Allot Record No. from 1 to Cell Range] button. **NOTE** • Clicking this button also inserts ruled lines in [Target Cell Range] automatically.

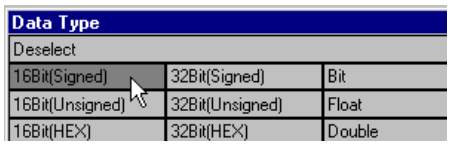
■ "Record No. Settings" Tab



Setting item			Setting content
Record No. at Write Recipe / Record No. at Read Actual Value	Specify by device/ symbol value		Specifies the recipe data by entering a record No. in the device or symbol specified by GP or Device/PLC.
		Node	Selects a node which has the device where a recipe record No. exists. **NOTE** • Clicking the [...] button can retrieve or add entry nodes. • Selecting "(Trigger-Source Node)" will select the entry node that has triggered the action.

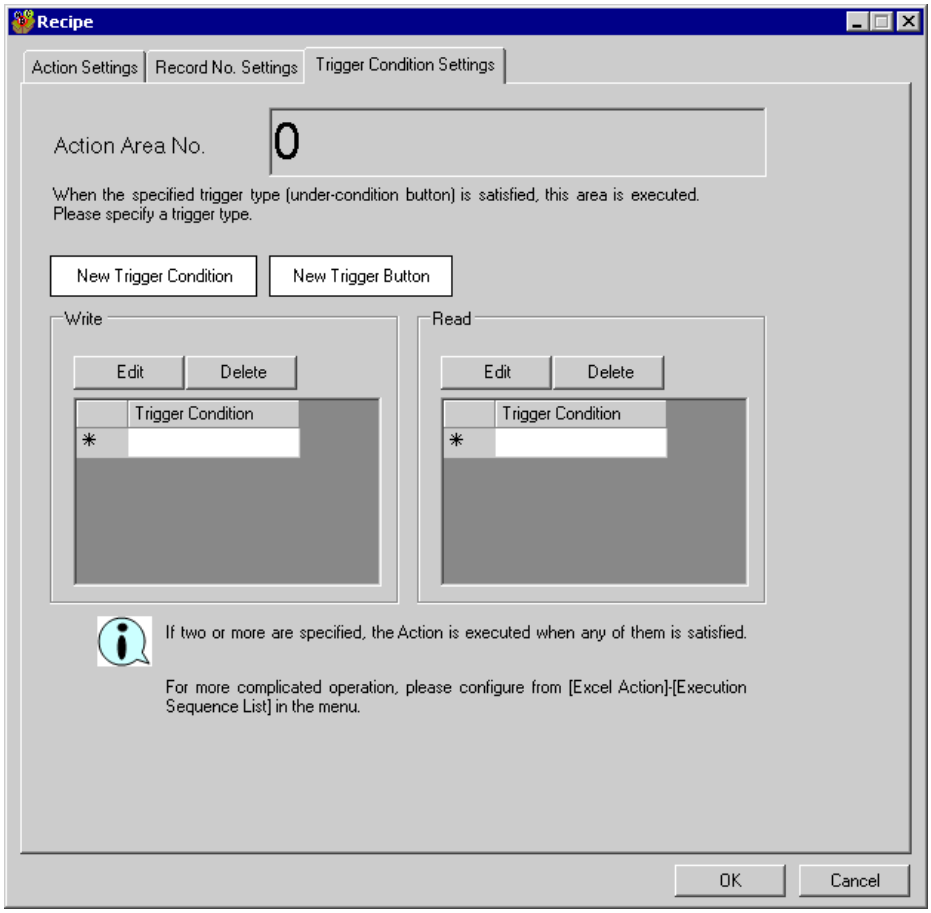
<table>
<tr><th colspan="3">Setting item</th><th>Setting content</th></tr>
<tr><td rowspan="4">Record No. at Write Recipe / Record No. at Read Actual Value</td><td rowspan="3">Specify by device/ symbol value</td><td>Device Name</td><td>Selects a Device/PLC which has the device where recipe record No.s exist.
NOTE
• It is not necessary to set when the entry nodes are GP Series nodes and Pro-Server EX nodes.</td></tr>
<tr><td>Device Address /Symbol</td><td>Sets the device address or symbol to be used.
• When specifying a device address:
Enter directly from the Calculator icon.
 

• When specifying a symbol:
Select the symbol by clicking the list button.

NOTE
• When setting non-sequential devices, be sure to specify a group symbol.</td></tr>
<tr><td>Data Type</td><td>• When specifying a device address:
Specify the data type.
 

• When specifying a symbol:
Data type automatically appears.</td></tr>
<tr><td>No. of Charact-ers</td><td>Specifies the number of readable characters of a record No. when the specified data type of the record No. is "character string".</td></tr>
<tr><td colspan="2">Specify by cell value</td><td>Recognizes the entered value or character string in any specified cell on Excel, as a record No.
Therefore, you can select [Specify by cell value] on condition that you use recipe data in such environment as the office having PCs.
NOTE
• Be sure to place cells to specify record No.s on the same sheet as recipe data.</td></tr>
</table>

■ "Trigger Condition Settings" tab



Setting item	Setting content
Action Area No.	Displays No. allocated to each ACTION area by template.
New Trigger Condition	Displays the "Trigger Condition Settings" dialog box. Click here to set a new trigger condition.
New Trigger Button	Displays the "Create Trigger Button" dialog box. Refer to "5.6.2 Setting Guide" for more details.
Write	Selects a trigger condition to write recipe data. Click the blank line of [Trigger Condition] and then the list button to display the registered trigger condition. **NOTE** • When plural trigger conditions have been specified, satisfying at least one of those conditions executes ACTION. • Clicking the [Edit] button can edit the specified trigger conditions. • Clicking the [Delete] button deletes the specified trigger conditions.

Setting item	Setting content
Read	Selects a trigger condition to read recipe data. Click the blank line of [Trigger Condition] and then the list button to display the registered trigger condition. **NOTE** • When plural trigger conditions have been specified, satisfying at least one of those conditions executes ACTION. • Clicking the [Edit] button can edit the specified trigger conditions. • Clicking the [Delete] button deletes the specified trigger conditions.

11.4 Restrictions

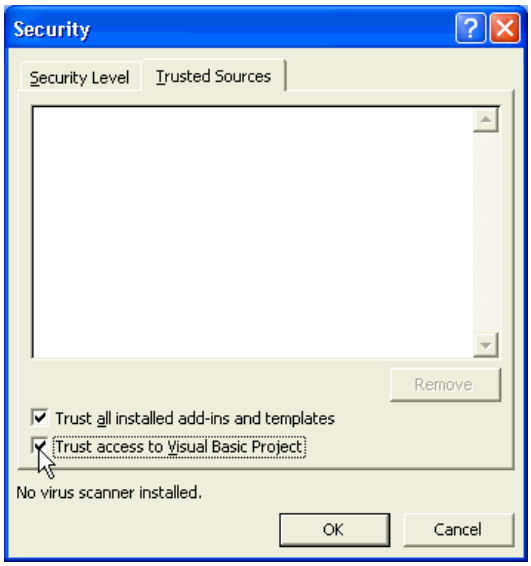
■ Using 'Microsoft Excel 2002' or later

When using these features with 'Microsoft Excel 2002' or later, turn on the following check box of the window.

(1) On the menu bar, select [Tools] - [Macro] - [Security].

(2) On the security screen, click the [Reliable Issuer] tab.

(3) Check the [Trust Access to the Visual Basic Project] check box.



If not checked, an error may occur while using the following features.

- [Tool] - [QC Chart]

Tools of Pareto graph, etc. cannot be used.

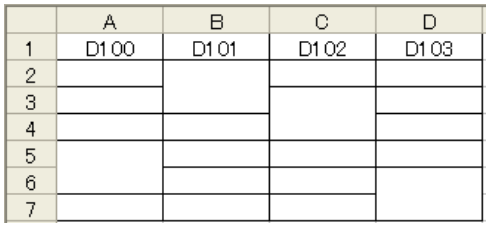
- [Tool] - [Insert Sample]

Form templates cannot be used.

■ Combined Cells

Do not set an ACTION area on combined cells.

For example, if you set an ACTION area in the cells as shown below, correct operation cannot be guaranteed.



	A	B	C	D
1	D100	D101	D102	D103
2				
3				
4				
5				
6				
7				

■ Over-pasted ACTION Areas

When you over-paste plural ACTION areas of different size, read/write will be executed in the pasted order.

■ Writing Data of Excel in the Device/PLCs

When the data type is "Character string", write null characters (NULL) in empty cells in Excel, and in the other cases write "0".

■ Writing Character String Data

When writing "Character string" data in Excel, format the cell(s) to write data in as "Character string".

■ Excel Window

If the setting screen is hidden behind the Excel window, the screen and task tray windows will blink and notify the user. Blinking will stop automatically when the setting screen comes forward.

■ Operation in ACTION area when error occurs

When you actually write/read in all the functions, such as "Device One-Shot" and "Device Logging", and exceed the ACTION area, perform the common operation as follows:

1) When performing a test read/ a test write

Error screen is displayed.

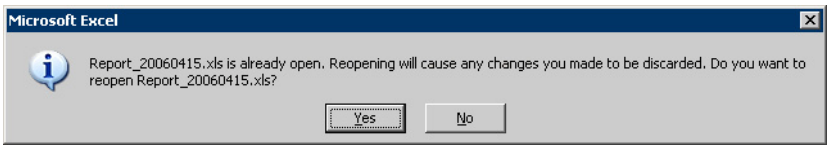
2) When executing ACTION in runtime

It will be recorded as ACTION error in the log viewer of the 'Pro-Server EX'.

■ In the case of closing the displayed output book

If you have mistakenly closed an output book of Excel Report ACTION, follow these steps to open it again:
Dragging and dropping the book to open will make it read-only and the start button etc. invalid.

1. Double-click the output book.
2. When the following dialog box appears, select "No" to open it.



■ Receive notification

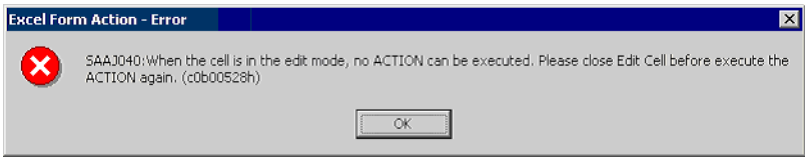
You cannot set the receive notification which indicates the completion of ACTION.

■ When setting “Trigger-Source Node”

When setting "Trigger-Source Node" at node in Excel Report action, node type and device are uncertain.
Therefore, the device address is displayed in red.But, it is no problem.

■ Edit the output file

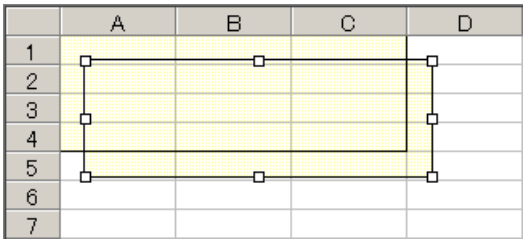
While Excel Report Action is executing, you can not edit the output file.
Therefore, it becomes very difficult to operate Excel at the setting in which the Trigger condition satisfies at a short cycle.Moreover, the following error message is displayed when the Action is executed during editing the output file.



■ Restrictions on Copying or Cutting and Pasting the Action Area

When you paste the Action area using Ctrl+C & Ctrl+V or Ctrl+X & Ctrl+V, specify [Target Cell Range] for the copied Action area.

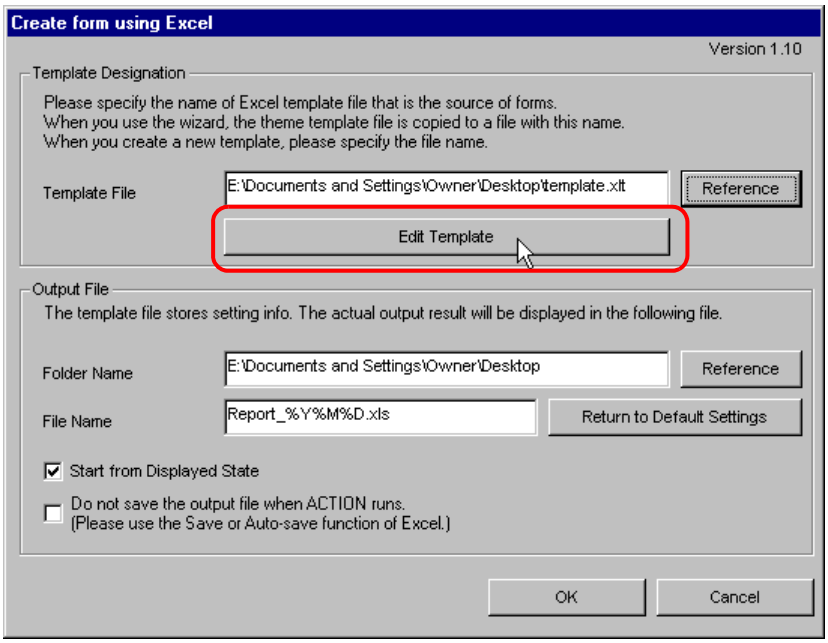
The Action area just after pasting remains the same [Target Cell Range] as that for the original Action area.



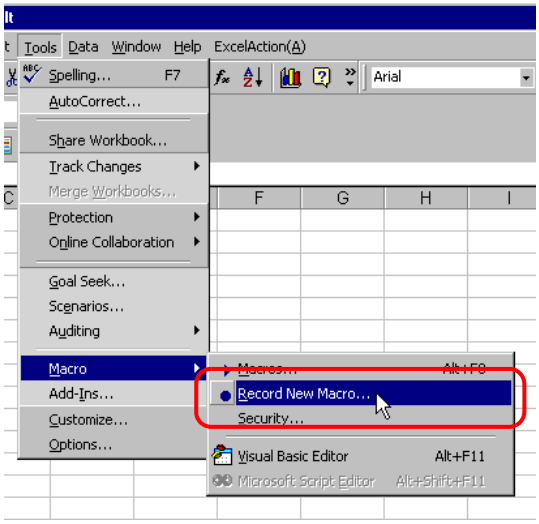
■ Excel Auto Save Function

The Excel auto save function does not operate due to the Excel restrictions.To save automatically, create the Excel save macro using the following procedure and execute the created save macro by Action.

1 Open a template you want to save automatically using 'Pro-Studio EX'.

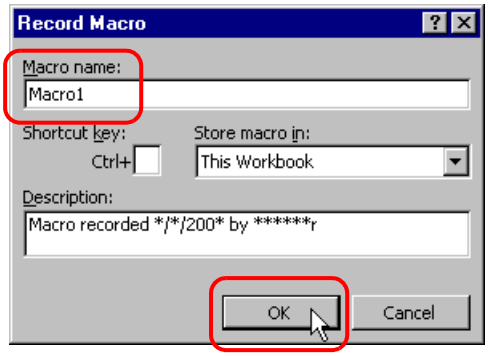


2 Select "Macro" and "Record New Macro" from the "Tools" menu.



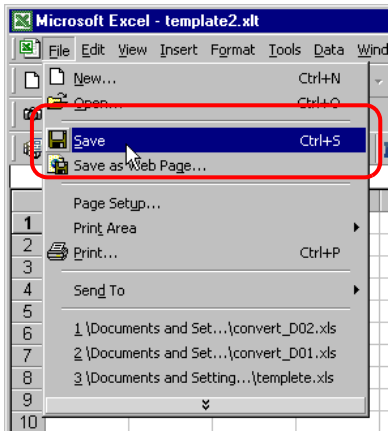
3 Enter the macro name "Macro1" and click the [OK] button.

Recording the macro starts.



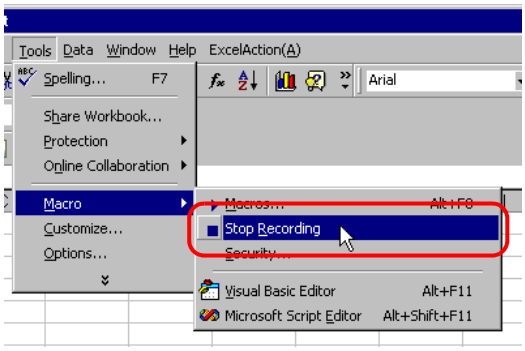
4 Select "Save" from the "File" menu.

"Macro1" is recorded in the macro.

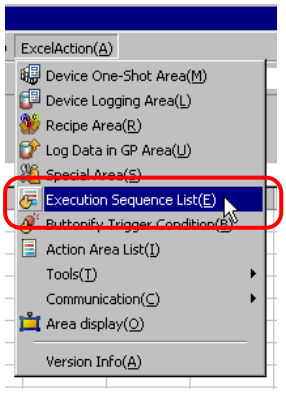


5 Select "Macro" and "Stop Recording" from the "Tools" menu.

Recording the macro is complete.

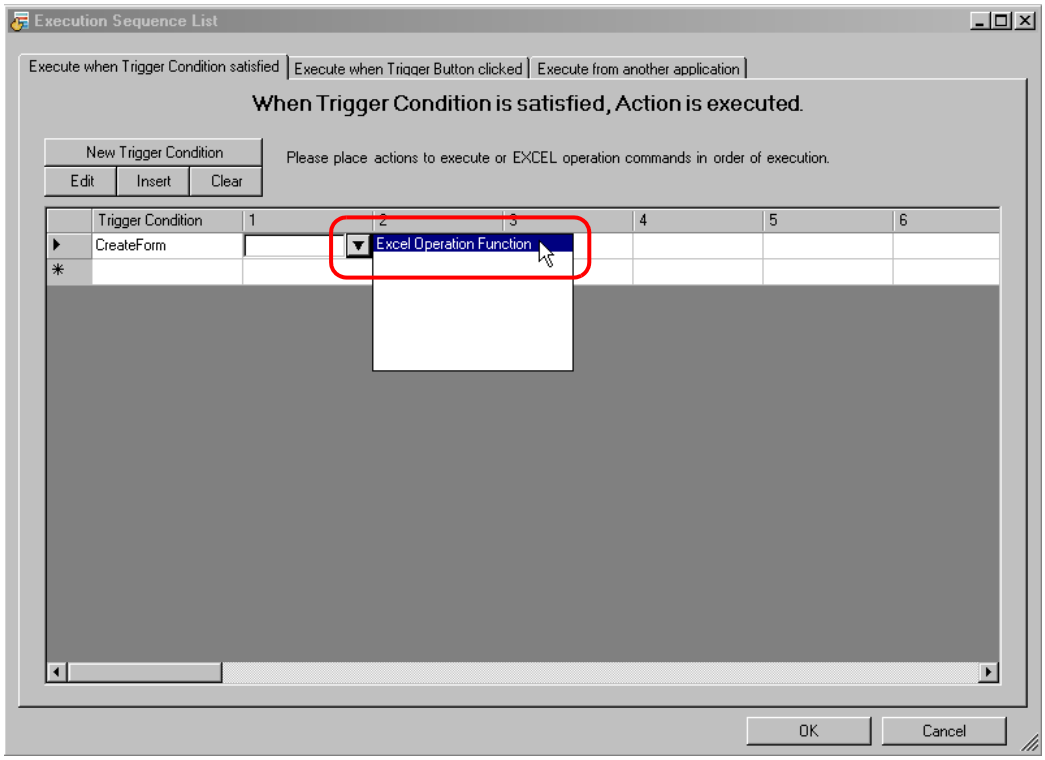


6 Select "Execution Sequence List" from the "Excel Action" menu.

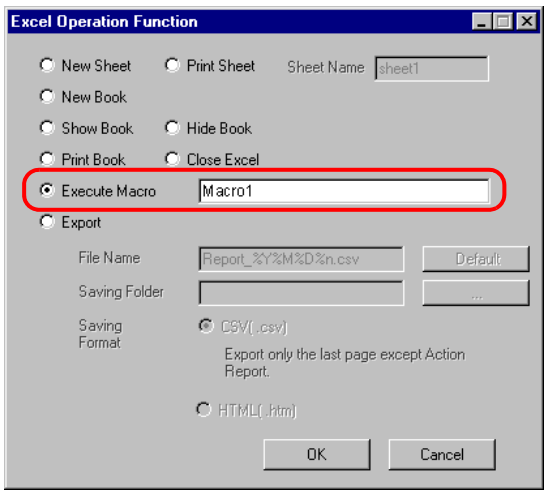


7 Create the trigger condition save automatically.

8 Select the created trigger condition and "Excel Operation Function".



9 Select "Execute Macro" and enter the macro name "Macro1".



10 Click the [OK] button.

11 Finish editing the template.

12 Save/Reload the setting contents.

According to the created trigger condition, the template is automatically saved.