1 | Other Action Features

Notice

Each action explained in this chapter is supported in order to keep compatibility with the old [Pro-Server].
Therefore, some features from the old [Pro-Server] might not be able to be used.

1.1　Create report using Excel

You can create a [Microsoft Excel] book that includes a variety of information using device data of connection devices, GP screen data, and GP backup data.
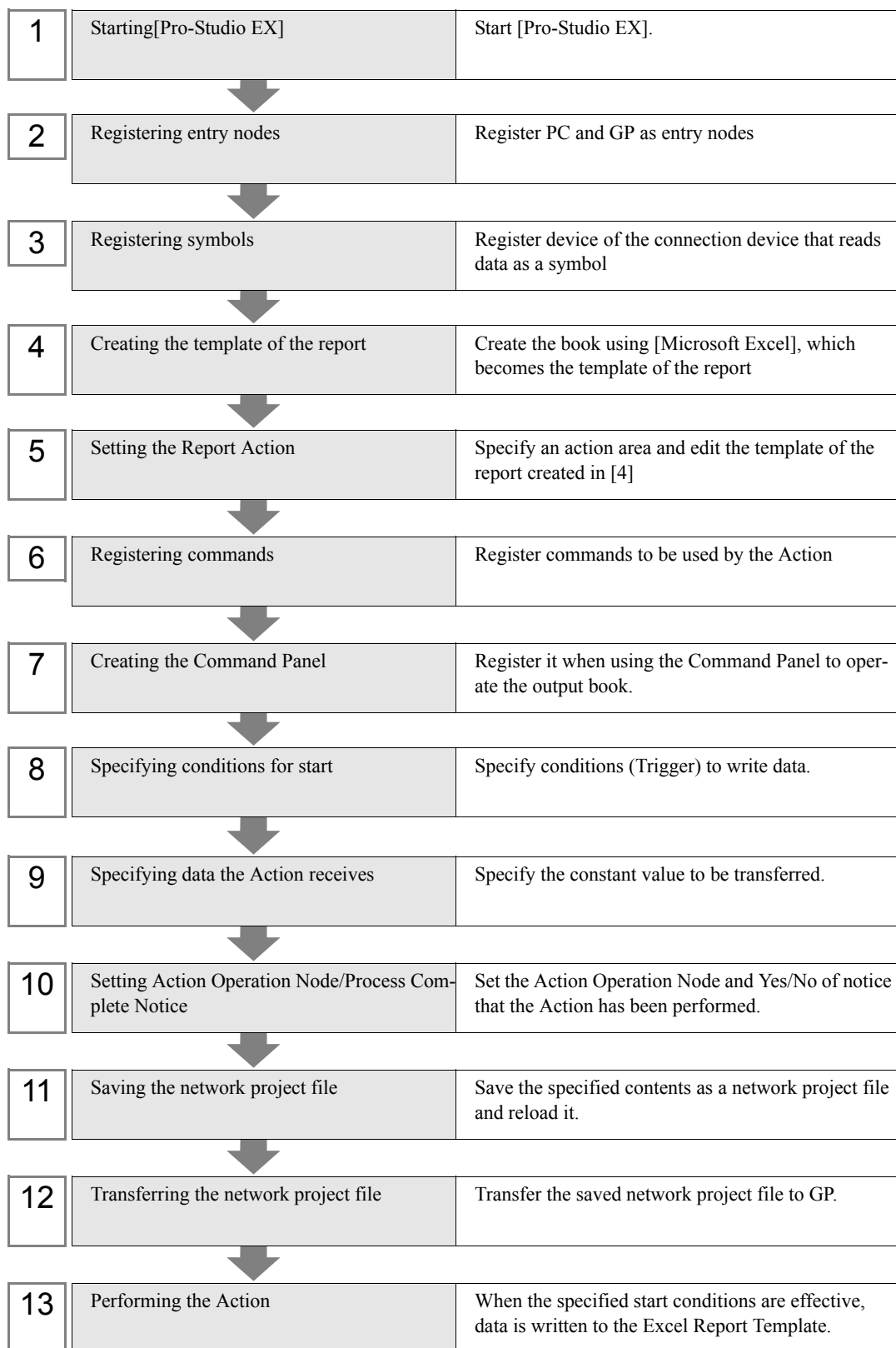

NOTE

- Referring to the explanations here, you can create a report using Excel. However, you can create reports more easily with using [Create form using Excel]. (It's recommended that you should use [Create form using Excel] when you create a report using Excel.)

  ☞ Pro-Server EX reference manual - Chapter 5　Creating a Form Using Excel

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1.1.1 Registration Procedure of 'Create report using Excel' Action

[Registration Procedure]

1	Starting[Pro-Studio EX]	Start [Pro-Studio EX].

2	Registering entry nodes	Register PC and GP as entry nodes

3	Registering symbols	Register device of the connection device that reads data as a symbol

4	Creating the template of the report	Create the book using [Microsoft Excel], which becomes the template of the report

5	Setting the Report Action	Specify an action area and edit the template of the report created in [4]

6	Registering commands	Register commands to be used by the Action

7	Creating the Command Panel	Register it when using the Command Panel to operate the output book.

8	Specifying conditions for start	Specify conditions (Trigger) to write data.

9	Specifying data the Action receives	Specify the constant value to be transferred.

10	Setting Action Operation Node/Process Complete Notice	Set the Action Operation Node and Yes/No of notice that the Action has been performed.

11	Saving the network project file	Save the specified contents as a network project file and reload it.

12	Transferring the network project file	Transfer the saved network project file to GP.

13	Performing the Action	When the specified start conditions are effective, data is written to the Excel Report Template.

1.1.2   Information Writable to the Report

The following information can be written to the report.

You can create various types of report such as work-site status or production information by placing the following data in the template.

◆ Real time device value of, for example, connection device(PLC), GP, Factory Gateway or [Pro-Server EX].

◆ Data saved in SRAM or CF Card of GP

- • Logging data
- • Trend data
- • Sampling data
- • Alarm data
- • CSV data（CSV display data）
- • GP screen data（JPEG data）

◆ GP screen data of GP captured real time

◆ Clock data within GP and Factory Gateway

◆ Clock data of the PC where [Pro-Server EX] is running

◆ Provider's node name

In addition, you can perform the following operations on the output book with the Action.

◆ Create a new Excel book (begin on a new book）

◆ Create a new sheet (begin on a new sheet within the output book)

◆ Printing per book

◆ Printing per sheet

◆ Perform a desired macro

◆ Display a book

◆ Hide a book

◆ Close a book

1.1.3   Creating the Report Template

Create the report including blank cells where number data is supposed to be written using Microsoft Excel in advance.

Create the report template while considering the contents of "1.1.2 Information Writable to the Report.

Designate what kind of data (e.g. device data, GP screen data) is written in blank cells created on the template of this report and complete it as a template book.

The [Create report using Excel] Action creates the report (output book) based on this template.

■ Example of Report (Template) Creation

The following report is only an example.

Create the report template according to your needs by setting the title of data to be written to the report and /or the format of the cell(s) where data is written.
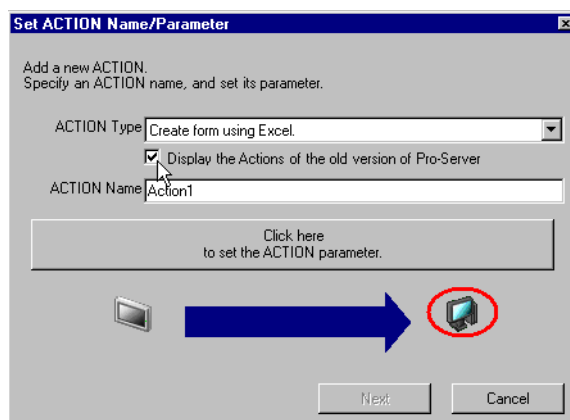
1.1.4　Setting the Report Action

The contents described here correspond to registration procedure[5] described in "1.1.1 Registration Procedure of Action".

1 On the [Set ACTION Name/Parameter]screen, click [Display the Actions of the old version of Pro-Server］.
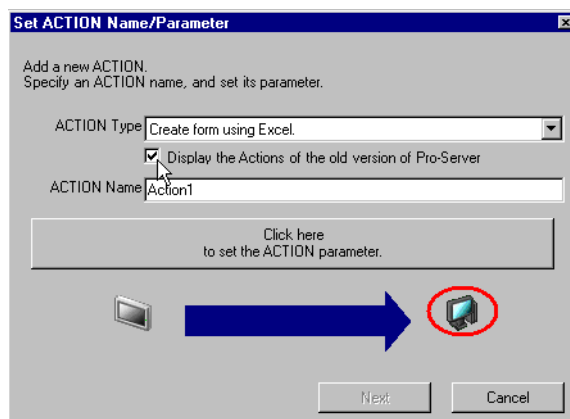
2 Click the list button of [ACTION Type] and select [Create report using Excel].

Next, enter an action name, [Create report using Excel] to be set for [ACTION Name］.

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

The 'Create report using Excel' screen will appear.

```
┌─────────────────────────────────────────────────────────────┐
│ Create report using Excel                                    │
│                                              Version 4.10     │
│  ┌Template Designation──────────────────────────────────┐    │
│  │ Template Book    [                    ]  [Reference]  │    │
│  │                                                       │    │
│  │              [      Edit Template      ]              │    │
│  └──────────────────────────────────────────────────────┘    │
│  ┌Output Book───────────────────────────────────────────┐    │
│  │ Folder Name  [C:\Program Files\Pro-face\Pro-Server with Studio\NPJDataBa]  [Reference]  │
│  │                                                       │    │
│  │ File Name    [Report_%Y%M%D.xls]  [Return to Default Settings]  │
│  │                                                       │    │
│  │  □ Start from Displayed State                         │    │
│  └──────────────────────────────────────────────────────┘    │
│           [   OK   ]   [  Cancel  ]   [  HELP  ]             │
└─────────────────────────────────────────────────────────────┘
```

[Template Designation]

Designate the sheet file created in the [1.1.3   Creating the Report Template].

Designate the filename using the file's full path. You can enter up to 217 single-byte characters. Also, you cannot use ','(comma) for the template sheet name.

Click [Reference] and designate the file which becomes the report template from the [Open] dialog box.

[Output Book]

Designate the folder where the Excel file written by the Action is saved and the filename used.

Designate the folder name using the full path. You do not need to put " \ " at the end of the name.

Use no more than 74 single-byte characters.

The total number of characters for the full path folder name plus filename should be 216 single-byte characters or less.

If you use a macro, the filename can be the node name, device name or a time. For node name or device name details, see Pro-Server EX reference manual-[35.1 Specifying a Macro to Use the Same Save File Name for each ACTION].

Use no more than 74 single-byte characters for the filename after substitution.

The macro sign will be shown in the table below.

Macro Sign	Returned Data
%Y	The current year Year in 4 digits
%M	The current month 2 digits
%D	The current date 2 digits
%h	The current hour 2 digits
%m	The current minute 2 digits

Macro Sign	Returned Data
%s	The current second 2 digits
%n	Number of output book creation. 1 or more
	（For details, refer to 1.1.10[Record File of the Last Output Book]）
%%	%

For example, when designating "%Y_%M_%D", if it is November 1st, 2006, the output book name will be "2006_11_01.xls".

Date and time on the server PC when newly created are added to the default filename.

［Start from Displayed State］

If you check [Start from Displayed State], you can start with the output book opened when executing the Action.

4 Click [Edit Template].

Excel is started and the designated template book is opened. The [Edit Template] screen appears.

The created report template can be changed to suit your needs, for example, by entering the write data title. You must designate the area to write data and set device addresses of data to be written in the report template.

The area set here is called the Action area.
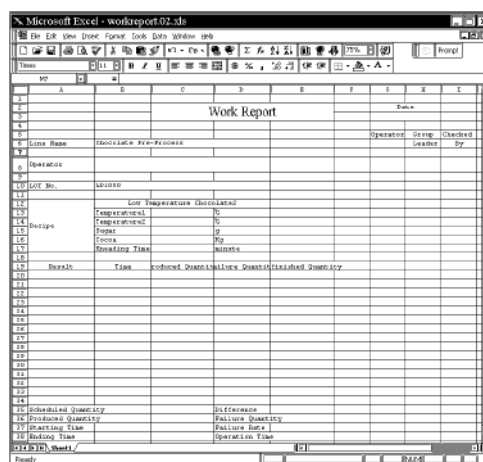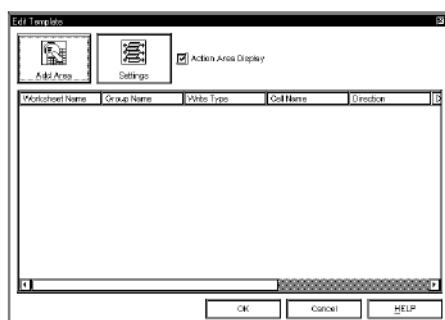
［Add Area］

Use to create the Action area to write data on the template.

[Settings]
Designate the method to perform the Action area or command for Excel.

[Action Area Display]
If you uncheck [Action Area Display], the template's Action area will be hidden. You can hide it when you wish to modify a template format.

5 Select cells to create the area and click [Add Area] to add the Action area.
The Action area with grids is inserted in selected cells and the [Action Area Properties] dialog box appears.
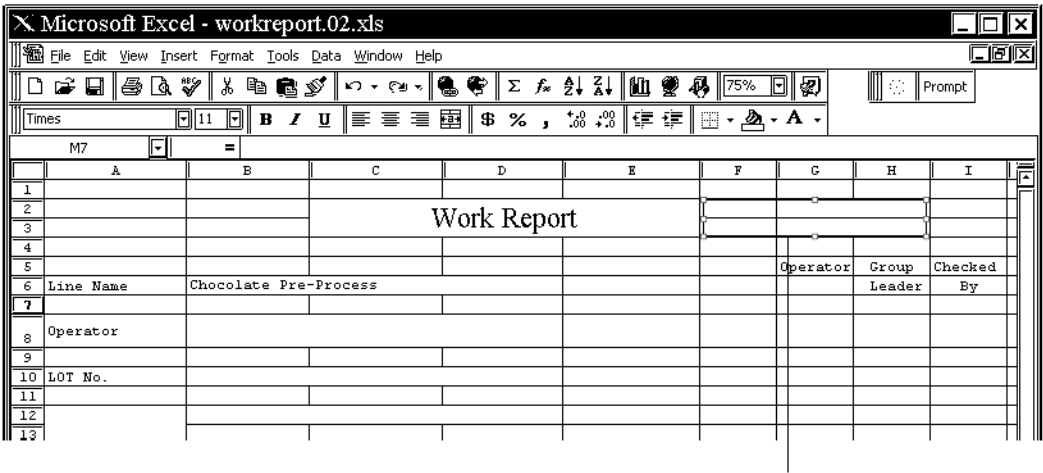
Inserted Action area
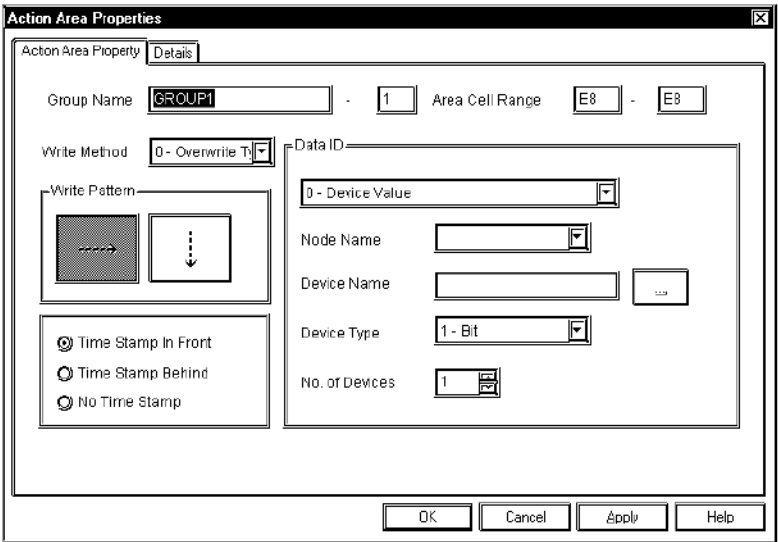
NOTE • Even if a newly created Action area's settings are cancelled while being created, an area with no settings will be created. In this case, simply select and delete the area.

［Group Name］

Group means a group of an Action area where data is written by one Action.

Perform the process of the Action area belonging to the group at one time by designating the group name. Enter a common group name for Action areas that you wish to perform at one time. A group name is not case sensitive. You cannot use ' '(space) or ','(comma) in a group name, and not '# '(sharp) in front (A name with '# ' in front is regarded as a command.),either.

The number on the right of the [Group Name] entry field is the number that the system automatically assigns to this Action area so that you do not have to designate it.

The default value of [GROUP1] is set in the [Group Name] entry field.

［Area Cell Range］

It indicates a cell range occupied by an Action area.

［Write Method］

You can select any of the following 4 types.

• Overwrite Type

In Overwrite type, data write is always started from the same location (cell on the upper left corner of the Action area) when writing data repeatedly.

• Historical Type

In Historical type, data write is started from the next line of the line on which writing was completed at the previous time when writing data more than one time.

Data written previously remains as historical data.

When the write area is exceeded, writing continues on the next sheet.

• Scroll Type

When performing multiple data writes, the row following the previously written row is used to begin writing, with the previously written data retained as a history.

If the data write area is exceeded, rows of old data are deleted as new data is written. (see below)

19	Result	Time	No. Prod.	Defects	Prod. Types
20	1	2002/8/21 4:45	22	3	2
21	2	2002/8/21 4:45	26	4	4
22	3	2002/8/21 4:45	28	5	6
23	4	2002/8/21 4:46	30	5	6
24	5	2002/8/21 4:46	31	5	6
25	6	2002/8/21 4:46	32	6	6
26	7	2002/8/21 4:46	33	6	6
27	8	2002/8/21 4:46	34	8	6
28	9	2002/8/21 4:46	35	8	6
29	10	2002/8/21 4:46	36	9	6
30	11	2002/8/21 4:46	37	9	6
31	12	2002/8/21 4:46	38	10	6
32	13	2002/8/21 4:46	39	10	6
33	14	2002/8/21 4:46	40	11	6

Data scrolls upwards as new data is added.

← Newest data is added here

- Loop Type

When performing multiple data writes, the row following the previously written row is used to begin writing, with the previously written data retained as a history.

If the data write area is exceeded, the oldest row of data is overwritten as each new data row is written. (see below)

19	Result	Date/Time	Prod.	Defects	Types
20	15	2002/8/21 4:47	41	11	5
21	2	2002/8/21 4:45	26	4	4
22	3	2002/8/21 4:45	28	5	6
23	4	2002/8/21 4:46	30	5	6
24	5	2002/8/21 4:46	31	5	6
25	6	2002/8/21 4:46	32	6	6
26	7	2002/8/21 4:46	33	6	6
27	8	2002/8/21 4:46	34	7	6
28	9	2002/8/21 4:46	35	7	6
29	10	2002/8/21 4:46	36	8	6
30	11	2002/8/21 4:46	37	8	6
31	12	2002/8/21 4:46	38	9	6
32	13	2002/8/21 4:46	39	9	6
33	14	2002/8/21 4:46	40	10	6

← Newest data overwrites old data here

NOTE • The following data types are not available when the Scroll or Loop functions are used. (4-Logging Data, 5-Trend Graph Data, 6-Sampling Data, 7-Alarm Block 1 Data, 8-Alarm History (Block 2), 9-Alarm Log (Block 3), 10-CSV Data (CSV Display Data）, 13-Alarm Block 4 Data, 14-Alarm Block 5 Data, 15-Alarm Block 6 Data, 16-Alarm Block 7 Data, 17-Alarm Block 8 Data)

［Write Pattern］
Designate the write direction when writing data in cells.

［Time Stamp］
If you select [Time Stamp in Front], time of a PC's internal clock when executing a command will be written in front of data. If you select [Time Stamp Behind], time of a PC's internal clock when executing a command will be written at the end of data.

Time display format is designated via the cell's "Write Setting/Display Format" settings.

[Data ID]

Select data to write in an Action area from among 13 available kinds of data. Since setup items displayed under data IDs differ depending on data IDs, select a data ID first.
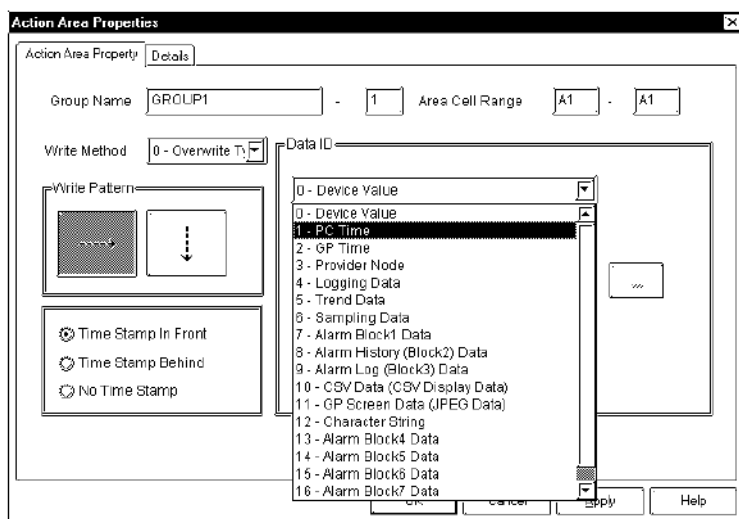
■ Data ID and Setup Items

The following data shows the contents of data IDs and setup items per data ID.

• 0-Device Value

Writes device values such as GP, connection devices, or PC in cells.

[Node Name]

Normally, designate the name of the entry node which reads device.

If you do not designate the node name, data is read from the Transfer source node when an Action is stated by the set Trigger Condition. When the Action is started by the Command Panel, data is read from the PC where the Command Panel exists.

[Device Name]

Designate the data source device name.

[Device Type]

Designate the data type.

［Number］

Designate the number of data items used.

Reads data designated by [Device Type] as many times as designated by [Number] from the device designated by [Device Name], and writes those in designated cells.
If there are too many devices, data which cannot be written within the cell range of the Action area will be truncated.

• 1-PC Time

Use this ID to write PC internal clock time to a cell. You can use this ID, for example, if you wish to record time when a job is performed. Time display format is designated via the cell's "Write Setting/Display Format" settings.

• 2-GP Time

Use this ID to write GP internal clock time to a cell. You can use this ID, for example, if you wish to record time when a job is performed. Time display format is designated via the cell's "Write Setting/Display Format" settings.

［Node Name］

Normally, designate the name of the entry node which reads internal clock time.
If you omit designating the node name, data is read from the Provider source node when an Action is started by Provider information. You cannot omit the node name when the Action is started by the Command Panel.

• 3-Provider Node

Writes the node name of the Provider source if the Action is started by Provider Information. Writes the node name of the PC where the Command Panel exists if the Action is started by the Command Panel.

• 4-Logging Data, 5-Trend Data, 6-Sampling Data, 7-Alarm Block 1 Data,
8-Alarm History (Block 2) Data, 9-Alarm Log (Block 3) Data,
10-CSV Data (CSV Display Data), 13-Alarm Block 4 Data, 14-Alarm Block 5 Data,
15-Alarm Block 6 Data, 16-Alarm Block 7 Data, 17-Alarm Block 8 Data.
Writes designated data from the GP's SRAM and CF Card.

［Node Name］

Normally, designate the name of the entry node which reads screen data.
If you omit designating the node name, data is read from the Transfer source node when the Action is started by the Trigger Condition. You cannot omit designating the node name when the Action is started by the Command Panel.

［File Number Set」

Designate which data in the SRAM or CF Card will be processed.

0-Current data

Data in SRAM is processed.

1-Latest data (data in CF Card)

The latest file in the CF Card is processed.

2-Indirect designation by device address (data in CF Card)

Among data in CF Card, the file with the same number as the device value designated by [Device Name] is processed.

3-File number designation (data in CF Card)

The file with the number designated by [File Number] in CF Card is processed.

If [Write Method] is set to [Overwrite Type], data that cannot be written within a cell range of an Action area will be truncated. Adjust a cell range so that data can be written within an Action area.

- 11-GP Screen Data (JPEG Data)

Writes captured data of the GP screen in the GP's CF Card or captured data from current GP screens into cells.

If 'Save GP screen'(capture) is performed, drawing and operations on the GP screen will stop for several seconds. Therefore, normally, 'Save GP screen'(capture) cannot be performed via the host PC.

To perform 'Save GP screen'(capture) via Host PC, turn ON (1) Bit 0 in the GP's LS2076.

While capture is executed, Bit 0 of LS2077 turns ON (1), and when capture finishes, it turns OFF (0).

[Node Name]

Normally, designate the name of the entry node which reads screen data.

If you omit designating the node name, screen data is read from the Transfer source node when the Action is started by the set Trigger Condition. You cannot omit designating the node name when starting the Action using the Command Panel.

[File Number Set」

Designate which data in the GP will be processed.

0-Current data (capture)

The GP screen is captured when the Action is started, and captured data is processed.

1-Latest data (data in the CF Card)

The latest captured data in the CF Card is processed.

2-Indirect designation by device address (data in the CF Card)

Among data in the CF Card, captured data with the same number as the device value designated by [Device Name] is processed.

3-File number designation (data in the CF Card)

Captured data with the number designated by [File Number] in CF Card is processed.

• 12-Character String

Writes character strings given as a parameter into a cell when executing this Action area. For designating parameters, refer to [1.1.5 Command Description].

6 After setting [Action Area Property], set [Details] if necessary.

When using "Write Method" to set Scroll Type/Loop Type, this feature cannot be used.
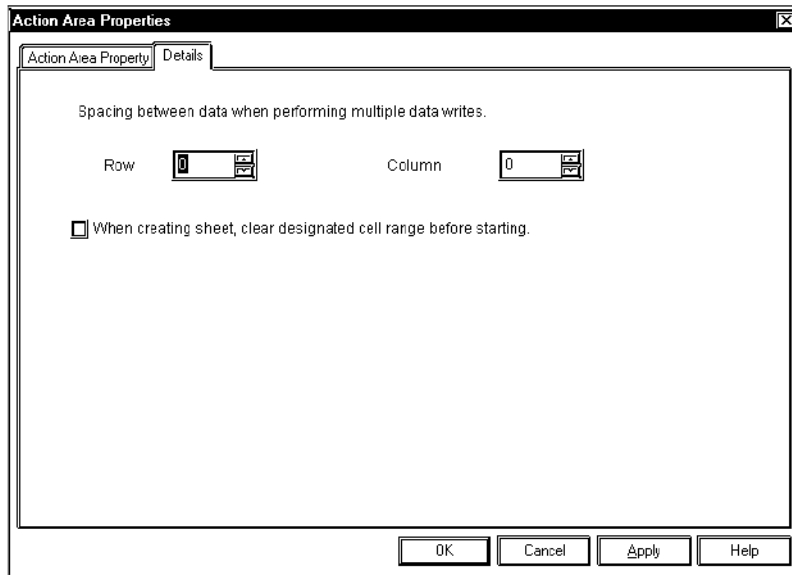
[Spacing between data]

If you write more than one data in one Action area, you can designate spacing between data using the number of cells in Row and Column directions. In the case of GP screen data (JPEG data), designate those not by the number of cells but by the number of points.

When creating sheet, clear designated cell range before starting]

If any unnecessary data exists in cells designated as an Action area, by checking this item, that unnecessary data will be deleted will be deleted when the Action is performed.

7 Click [OK] after setting [Action Area Property].

8 Create another Action area, referring to setup procedures 5 and 6.

After setting the necessary Action area in the report template sheet, the template appears as follows.

Moreover, setup information for the created Action area is displayed in the [Edit Template]dialog box.
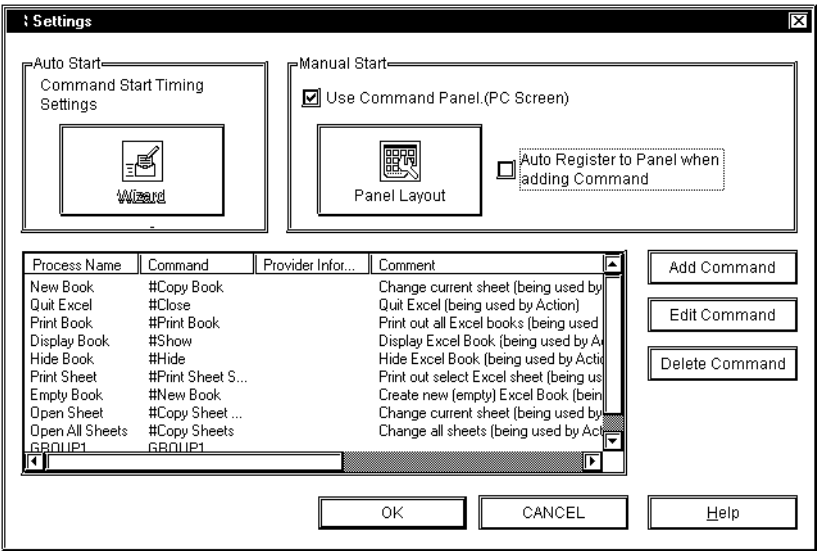
Your template is now complete.

If you create many Action areas in the template, it may take a long time to update the setup information (2 to 3 minutes per 100 Action areas). Please keep this in your mind when you create Action areas.

1.1.5　　　　Registering Commands

The item described here correspond to the procedure [6] described in "1.1.1 Registration Procedure of Action".

1 If you click [Settings] in the [Edit Template] dialog, the [Settings]dialog will appear.
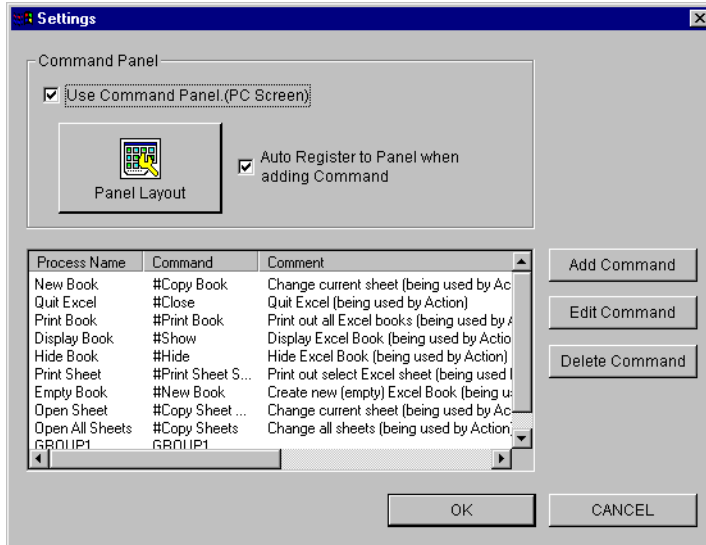
［Process Name］
9 kinds of frequently used command lines have been registered as samples. Groups created in [Edit Action] are registered as command lines.

For [Command Panel], refer to [1.1.6 Creating Command Panel].

2 After selecting the command line to set/edit using a mouse pointer, if you either double click it or click [Edit Command], the [Process] dialog box will appear.
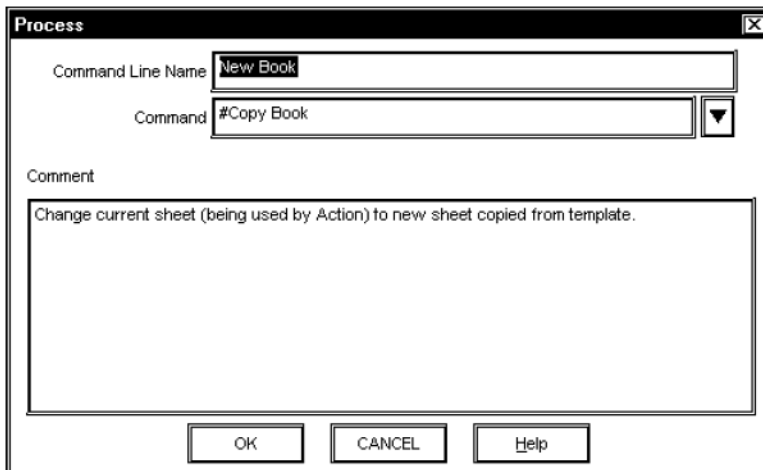
You can enter or change the command line name, the command and the comment.

For restrictions when registering commands/command lines, refer to "About Commands" on the next page.

3 If you click the [▼] button on the right of the [Command] field, the [Command List]dialog will appear.
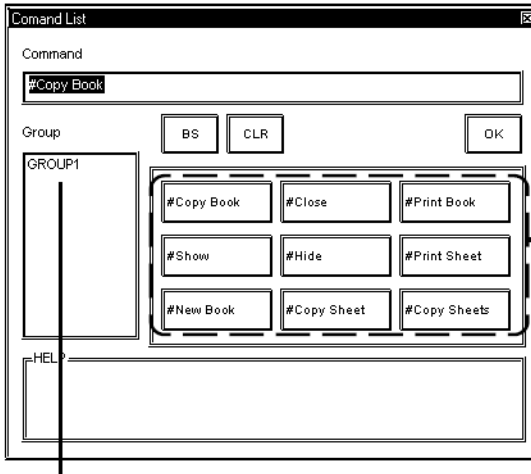
If you click it, group names separated by commas will be added in the command field.

Buttons to add each command separated by a comma in the command field.

4 When you setup or edit commands, use the buttons in the dialog above to add commands or group names to the process name field.

If you click [BS], commands are deleted one by one. [CLR] deletes all commands.

5 If you complete setting or editing commands, click [OK]. Next, click [OK] in the [Process] dialog box.

NOTE • You can create new commands by clicking [Add Command], however, the contents of the dialog displayed are the same as those of [Edit Command]. When deleting a process name, select the process name using a mouse pointer and then click [Delete Command].

■ About Commands

A command is a specific operation that you wish the designated Action to perform, and you can perform one operation using one command.

A command line consists of more than one command (including a group) so that it can perform a series of operations. The following restrictions apply when naming a command/command line/group/template sheet.

1. A command line consists of more than one command (or group), and each command/group name is separated by ','(comma).
2. In the case of a command name, '# '(sharp) is added in front of the name.
3. In the case of a group name, you cannot use '#'(sharp) in front of the name.
4. In the case of a group name, you cannot use ' '(space) in the name.
5. Names which start other than '#'(sharp) are regarded as group names.
6. A command may have a parameter. You cannot use ','(comma) in a parameter.
7. You cannot use ','(comma) in a template sheet/group/parameter name.
8. A command/group/template sheet name is not case sensitive.
9. You can enter up to 255 single-byte characters in a command line.
10. If a command line name includes the '&'(ampersand) character, it may not be displayed on the Command Panel.

If there is more than one command in a command line, the Action will perform each in order, one by one. If, however, an error occurs when executing a command, the process is terminated at that point.

For example, If "GROUP1,GROUP2,GROUP3" are defined in the command line, it will be performed in the order of GROUP1 → GROUP2 → GROUP3. However, if an error occurred in GROUP2, the process is terminated at that point and GROUP3 will not be performed.

Moreover, if more than one Action area has been registered within one group (when group names for those Action areas are same), the Action will perform the Action area in turn, however, if an error occurred mid-process, the process is terminated at that point, and remaining Actions will not be performed.

■ Command Description

New Book Creation Command

#New Book	: Creates a new blank book. However an Action report sheet is automatically attached.
#Copy Book	: Copies a template book newly and creates an output book. This command functions equally as "#New Book, #Copy Sheets".

When you create a new book, an error will occur and exit the process if there are no template books existing.

New Sheet Creation Command

#Copy Sheets   : Creates copies of all template sheets within a template book in an output book.

#Copy Sheet Template Sheet Name

        : Creates a copy of the template sheet designated by Template Sheet Name within a template book in an output book.

        There must be more than one blank space between #Copy Sheet and Template Sheet Name.

        For example, if Template Sheet Name is "Sheet1", the command should be "#Copy Sheet Sheet1".

If the designated Template Sheet Name does not exist in a template book, an error will occur and the setup will quit (exit).

Print Command

#Print Book   : Prints all sheets other than an Action template sheet in an output book.

#Print Sheet Template Sheet Name

 : Prints the last created sheet based on the template sheet designated by Template Sheet Name in an output book.

        There must be more than one blank space between #Print Sheet and Template Sheet Name.

Executing a Macro

#Run Macro Name : Performs the macro designated by Macro Name. There must be more than one blank space between #Run and Macro Name.

#Run Macro Name Parameter

        : Performs the macro designated by Macro Name with Parameter as the first argument (character type). There must be more than one blank space among #Run, Macro Name and Parameter.

If you set the same name to Macro Name as cell names used by Excel such as A1 or B1, en error will occur. Do not set these names to Macro Name.

If the designated macro does not exist or a macro call failed, an error will occur and the setup will exit. Even if a macro has a return value, it will be ignored.

Displaying an Output Book

#Show   : Opens and displays an output book.

Hiding an Output Book

#Hide : If an output book has been opened by Pro-Server EX, an output book will not be displayed.

At this time, an output book remains open.

If an output book is not opened by Pro-Server EX, nothing happens.

Closing an Output Book

#Close : If an output book has been opened by Pro-Server EX, an output book will be closed after saving it automatically. Excel will also exit at this time.

Performing the Contents Designated by "Group Name"

Group Name : Pro-Server EX searches the write area equal to the group name designated by Group Name within the write area designated by the template book.

When Pro-Server EX finds the write area, it writes values in cells of the output book according to the settings. If there is more than one write area in the template book, it writes to all write areas (you cannot designate the write order).

If an output book contains more than one sheet created from the same template sheet, the latest sheet will be written.

For example, if there are template sheets, Sheet1 and Sheet2 including "Group1" in the template book and that Sheet1-1, Sheet1-2 and Sheet1-3 were created from Sheet1 and Sheet2-1 was created from Sheet2 in the output book.

If you perform "Group1" in this situation, data will be written in Sheet1-3 and Sheet2-1 in the output book.

Group Name String

: If the Data ID of the Action area is character strings, character strings are written in the cell. Character strings are designated next to a group name as String (parameter).

Insert a space between a group name and character strings.

You cannot use commas in String.

1.1.6   Creating Command Panel

To create (write data to) the output book according to the contents designated in the template, you must perform the command to start the Action.

The Command Panel is the toolbar-like dialog box used to issue the "Perform the command" on PCs.

You can perform Actions easily by simply assigning the command line registered in the [Settings] dialog box to the button on the Command Panel and clicking the button.

The contents described here correspond to the procedure [7] described in [1.1.1 Registration Procedure of Action].

1 If you click [Settings] in the [Edit Template] dialog box, the [Settings] dialog box will appear.
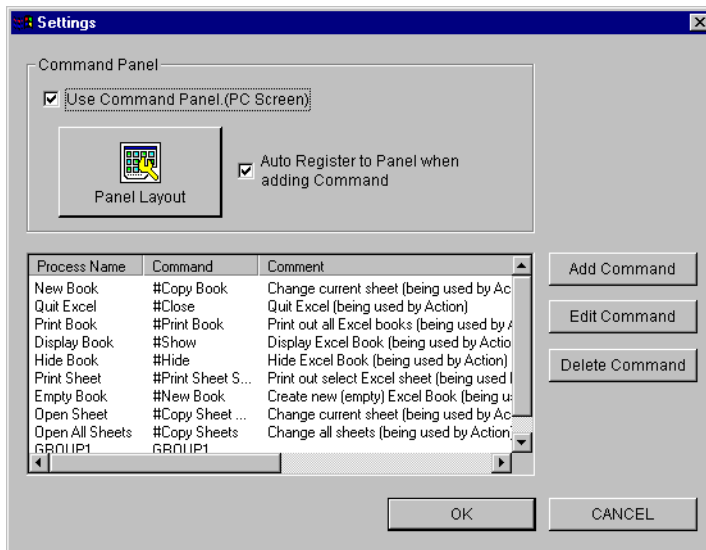
[Use Command Panel. (PC Screen)]

If you check this option, the Command Panel will be displayed when starting Pro-Server EX.

[Auto Register to Panel when adding Command]

If you check this option, commands are added automatically to the Command Panel when selecting new commands.

2 If you click [Panel Layout], the [Command Panel Layout] dialog box will appear.
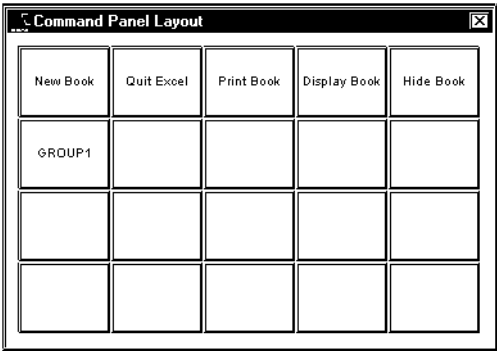
■ Editing the Panel Layout

If you move the mouse pointer to right/left/bottom edges of the dialog box, the mouse pointer will change to the size-adjust pointer. You can also adjust the dialog box's size to change the number of buttons displayed in the panel. Moreover, the panel display location can be set by moving the [Command Panel Layout] dialog box to the desired location on the screen.

If you right-click command buttons, the following command list will appear so that you can designate commands to set to those buttons.
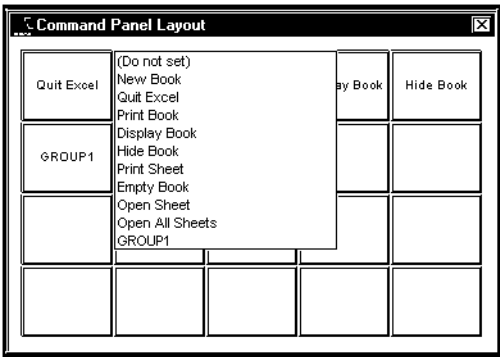
You can use left-click and drag to move existing commands to different locations.

The maximum number of buttons which can be displayed on the Command Panel is 7 (vertical) by 10 (horizontal) = 70 (total).

You can display one Command Panel per Action.

■ Command Panel Display

When you read the network project file that uses the 'Create Report using Excel' Action after starting Pro-Server EX, the Command Panel will appear on a PC screen if you have checked [Use Command Panel. (PC Screen)] in the [Settings] dialog box.

If you wish to display the Command Panel after closing it once, right-click the Pro-Server EX icon displayed in the Windows taskbar and select an Action name from [Action Execute].

The menu list will appear. If you select [Show Command Panel], the Command Panel will be displayed again. In the menu list, in addition to [Show/Hide Command Panel], you can also select [Show Book](Show command), [Hide Book](Hide command) and [Quit Excel](Close command).

3 After those settings are completed, click [OK].

1.1.7 Setting Trigger Condition

Set Trigger Condition to write data to an Excel report.

For setting Trigger Condition, see Pro-Server EX reference manual-[Chapter 30 Trigger Condition].

1.1.8 Saving and Transferring Network Project File

Save the setup contents as a network project file and transfer them.

For saving and transferring the network project file, see Pro-Server EX reference manual-[Chapter24 Saving] [Chapter25 Transferring].

1.1.9 Performing Action

When Trigger Condition is enabled, Action performs and data is written to the designated area in the Excel Report.

That's all for explanations of Action.

1.1.10 When Registering/Using 'Create report using Excel' Action

The following information should understand prior to registering/using the "Create Report using Excel" Action.

■ Important:When Starting Excel on PCs Running 'Create Report using Excel' Action

Be aware of the following points in environments where files with ".xls", ".xlt" or ".csv" extensions are registered to be started by Excel.

When Excel is started by an Action, if you try to open files by double clicking them in Explorer, files may not be opened or may not act as expected.

Normally, If Excel has already been started, if you double click files on Explorer, Excel will try to open files. However, the "Create Report using Excel" Action only supports and controls files opened by the Action. Therefore, while this Action starts Excel, if files which have not been opened by this Action are opened by, for example, double clicking, the control will be out of this Action and Action operation will become unstable.

Also, do not open files using any other methods, since the same problem(s) can occur.

If you use Excel as follows, the Action will be unaffected.

In addition to Excel started by the Action, if you start Excel from the [Start] menu or "Windows" and open files from Excel's [Open]menu, or if you open files by the dragging and dropping on Excel, the Action will not be affected and will operate normally.

■ Sheet Name of Template Book

You can use macro to the sheet name of the template book as well as the output book name. When creating a sheet in the output book, this Action adds the sheet name by replacing the registered macro sign with a specific value.The following shows the content of Excel macro symbols.

Macro Sign	Replacement Contents
%Y	The current year Year in 4 digits
%M	The current month 2 digits
%D	The current date 2 digits
%h	The current hour 2 digits
%m	The current minute 2 digits
%s	The current second 2 digits
%n	Number of sheets created within the book 1
%%	%

For example, if you wish to create one sheet per day (with date attached) in the output book, set the sheet name of the template book as "%M (month)%D (day)". If the sheet is created in the output book on October 31st, the sheet name will be "10 (month) 31 (day)".

Even if you designate other characters than those in the table in the previous page right after "%", it will not be recognized as the macro sign, and "%" will be ignored.

If you designate the sheet name in the "#Copy Sheet Template Sheet Name" or "#Print Sheet Template Sheet Name" command, you should designate the sheet name of the template book in the original way (macro sign before replacement).

■ Action Report Sheet

When creating the output book, this Action automatically adds the sheet with the name of 'Action Report' in the output book.

In this Action Report sheet, the latest record about what kind of data this Action has output to the output book is always written. You can refer to it when checking, for example, the progress state of the process.

Also, when the output book was once closed and then opened again, this Action starts the next operation based on the record in the Action Report sheet.

If you rewrite the contents of the Action Report sheet, it can cause unexpected conditions, such as that the Action does not run correctly. As a result, do not change/rewrite these contents if it is necessary.

■ Record File of the Last Output Book

When creating the output book in the output folder for the first time, this Action creates the file to record the output book name. This filename will be the name of the created output book with the ".INI" extension added (*.INI). For example, if the output book name is "Report_%Y%M%D", the "Report_%Y%M%D.INI" file will be created.

The name of the latest output book which performed output and the number of output book creation are recorded in this file.

When switching the output destination to other output book, this Action refers to the contents of this file. If you change the contents of the file or delete the file, it can cause unexpected conditions, such as that the Action does not run correctly.

■ Important Matters When Using "Create Report using Excel" Action

Be sure to understand these items prior to actually using this Action.

Timing of Opening/Closing Output Book

This Action opens the output book using the following timing.

1. When running the Action from Provider, the Command Panel or user-defined applications (however, "#Close" and "#Hide" commands are excluded).

2. When right clicking the Pro-Server EX icon in the task tray, selecting [Action Perform] → [Action Name], and then executing other menu options than [Hide] or [Close] (refer to "1.1.6 Displaying Command Panel").

This Action closes the output book using the following timing.

1. When clicking [Close] in the Command Panel.

2. When executing the "#Close" command from Provider or user-defined applications (however, it also exits Excel.).

3. When executing the "#New Book" or "#Copy Book" command from Provider or user-defined applications. In this case, the new book will be opened automatically after the old book is closed.

4. When the network project is reloaded.

5. When Pro-Server EX exits.

When you close the output book, close it using steps from [1] through [5] described above. Do not close it directly using the [Exit] or the [Save As] menu option of Excel. If you close Excel using these menu options, it can cause unexpected conditions, such as that the Action does not run correctly.

Common Usage Violation of Output Book

While the output book is opened by this Action, if you try to open the output book by another version of Excel, it will cause a common usage violation of the output book so that you may not be able to open it.

When the output book is not opened by this Action, you can open the output book by another version of Excel, though, you should close it before starting this Action. If you leave the corresponding output book open, a common usage violation will occur on the Action side (PC) and the process may not be performed. To avoid this problem, while the Action is running or when the Action may be started, open the corresponding output book by clicking the [Display] button in the Command Panel.

Environment to Use This Action

This Action starts one Excel book per one Action, and the Action will occupy Excel when the output book is opened ("Timing of Opening/Closing Output Book in the previous page).

Therefore, even if you have registered more than one Action within the network project, this Action may not be started simultaneously due to resource problems such as PC or OS memory (the number of Actions which can be started simultaneously differs depending on your PC environment).

If there are any problems when starting this Action simultaneously, adjust the timing of starting or closing Excel, for example, using the "#Close" command.

Opening Template Book

The template book will be opened automatically in [Hide] mode when the Action needs to refer to it (e.g. when creating a new output book or sheet). When the Action completes referring to the template book, it will be closed automatically.

Switching Timing of Output Book

If you do not change the output destination intentionally using the "#New" or the "#Copy" command, the output book will not be changed. For example, when the file that the output book name is "Report_%Y_%M_%D" is used, if this Action uses the output book on October 29th, 2006, the Action result will be output to the output book of "Report_2006_10_29.xls". If this Action uses the output book on the next day, October 30th, 2006, the Action result will be output to the "Report_2006_10_30.xls", however, "Report_2006_10_29.xls" and "Report_2006_10_30.xls" are the same output book of "Report_%Y_%M_%D" and it means that a new output book will not be created every time the day changes.

Version Compatibility

- When a version of Pro-Server that is lower than 4.5 is used with a template set for either [Write method/Scroll Type] or [Loop Type], the action area's OCX is copied as it is to the output file. In this case, delete the action area.
- When a version of Pro-Server that is lower than 4.5 is used with a template that has the data type of alarm blocks 4 to 8, the action area's OCX is copied as it is to the output file. In this case, delete the action area.W

1.2 Writes Data to Excel Book

Data of GP or connection devices can be written to the designated cell on the Excel sheet.

The written data can be developed by using various features of Excel such as Graph.

> NOTE • Referring to the contents described here, you can write data to an Excel book. However, using 'Excel Form Action' enables you to write data more easily.
>
> When writing data to an Excel book actually, it's recommended to use 'Excel Form Action'.
>
> ☞ Pro-Server EX reference manual-Chapter 6   Writing Device/PLC Data in Excel File

1.2.1 Registering Action Items

> NOTE • Prior to registering Action Items, please register entry nodes and symbols.

Name the Action to be used and register it.

1 On the [Set ACTION Name/Parameter] dialog box, check [Display the Actions of the old version of Pro-Server].
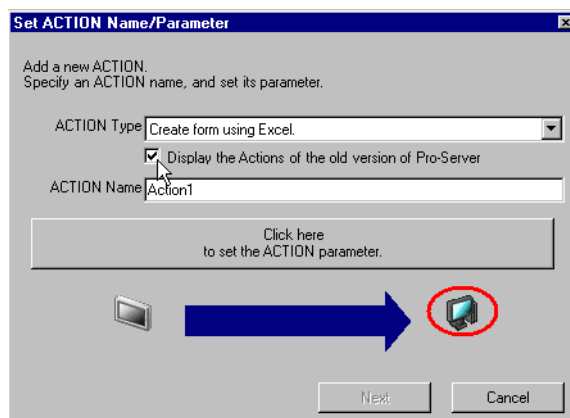
2 Click the list button of [ACTION Type] and select [Writes Data to Excel Book].

Next, enter the Action name of [Write to Excel Book] for [ACTION Name].
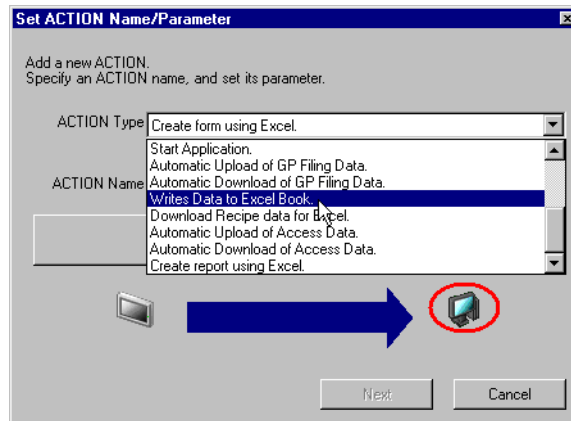
3 Click the [Click here to set the ACTION parameter] button.

The Action's parameter setup screen will appear.

1.2.2   Setting Action Parameters

1 Set each item on the Action's parameter setup dialog box.

［Book Location:］
Designate the folder to save.

［Book Name］
Designate the book name. Books can be designated indirectly. For details, see Pro-Server EX reference manual-[35.1 Specifying a Macro to Use the Same Save File Name for each ACTION].

［Zero Suppress］
If you check this option, no zeros are used in the file name even though the folder name includes "%M%D%h%m%s" (month, day, hour, minute, second) data.
If you do not check this option, 0 (zeroes) are retained in the file name if the folder name includes "%M%D%h%m%s" (month, day, hour, minute, second) 0 data, i.e. "07" or "02".
The default is "checked".

NOTE	• Writing in the Excel sheet is performed while searching blank line. A large amount of data in a sheet can slow down the writing process.
	If a sheet is allocated using a book name like "%Y%M%D%h%m%s", the writing process will be faster.

［File Save Method］

When you always wish to create a new book, check [Create new Book]. If you wish to add/append new data to old data, etc, check [Append data to Book].

NOTE	• If you check [Append data to Book], you can use the high-speed data write feature.
	For details, refer to the next page.

［Template File Location］

If you wish to use an existing template file, check [Use template file], and then designate the template file name (*.xlt).

NOTE	• The designated template file should contain only sheet1.

［Book is Currently Open］

Check this option when books with the same filename are open during writing. Select either [Do not save data] or [Use Temporary Book].

If you check [Do not save data], written data will not be saved and it will be deleted.

If you check [Use Temporary Book], written data will be temporarily saved under a separate filename (the temporary filename will be "%Y%M%D%h%m%s.xls").
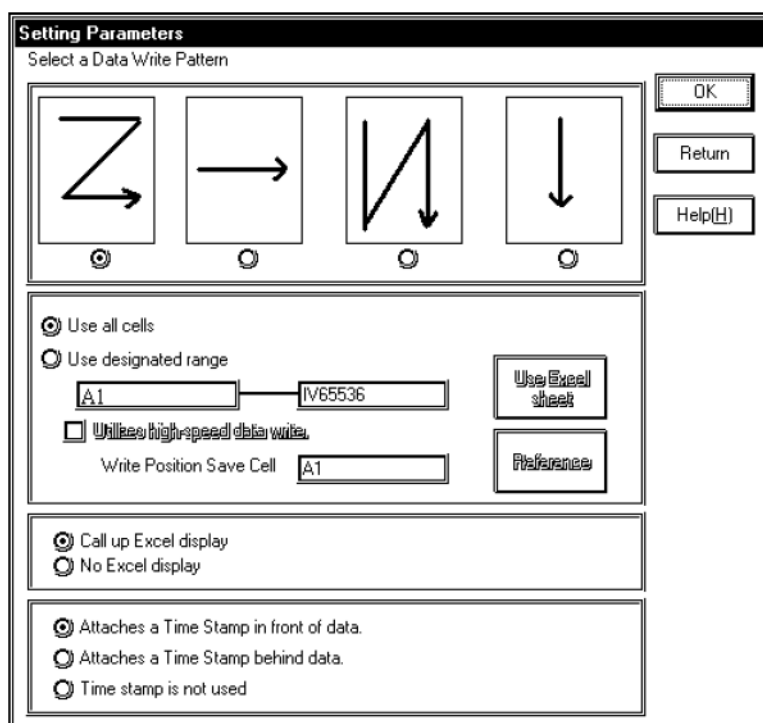
［After data were written］

Check this option when you print out written data. Select the printing timing from either [Printing is every time] or [Printing is one every the sheet].

If you check [Printing is every time], printing will be performed every time data is written.

If you check [Printing is one every the sheet], printing will be performed after all data is written to the designated range.

2 After setting all parameters and clicking [Next], the following dialog box will appear.

Setting Parameters
Select a Data Write Pattern

[Select a Data Write Pattern]

Designate the sheet write pattern.

Data is written on cells within a sheet according to the designated write pattern.

［Write Data Range］

If you wish to limit the write range to a single sheet, check [Use designated range].

If you click [Use Excel sheet], the following dialog box will appear and Excel will start.

After designating the write range in Excel (shown below), click [OK] in the above dialog box.

This sets the designated range as the data write range.

When the designated data write range is filled with data, a new sheet is automatically created and the write process is continued on a newly created sheet.

［High-Speed Data Write］

After you check [Append data to Book] as the data saving method in the [Setting Parameters] dialog box and designated the write cell range, [Utilizes high-speed data write] is enabled.

High-speed data write uses the designated data write cell location to start writing, which speeds up the writing process.

Check [Utilizes high-speed data write] and enter the cell where information for the write start location is saved in [Write Position Save Cell].

If you click [Reference], you can designate [Write Position Save Cell] using the same operation as [Write Data Range].

You cannot designate a cell designated by [Write Data Range] for the [Write Position Save Cell].

| NOTE | • When you set up multiple Actions that use the "Writes Data to Excel Book" feature and then write to the same sheet using more than one Action, be sure to designate a different cell for each Action's [Write Position Save Cell]. If you use the same cell for every Action, the write start location may shift. |

［Call up Excel display］

If you check [Call up Excel display], Excel will automatically start as soon as the trigger conditions are satisfied and you can refer to write data.

However, Excel will quit (exit) after a preset interval once writing is finished.

［Time Stamp］

If you check [Attaches a Time Stamp in front of data], the provided time will be written in the starting cell. If you check [Attaches a Time Stamp behind data], the provided time will be written in the ending cell.

Time display format is fixed and written in [%Y/%M/%D %h:%m:%s].

1.2.3 Setting Trigger Condition

Set trigger conditions to write data to an Excel book.

For setting Trigger Condition, see Pro-Server EX reference manual-[Chapter31 Trigger Conditions].

1.2.4 Saving and transferring the network project file

Save and transfer the setup contents as a network project file.

For saving and transferring a network project file, see Pro-Server EX reference manual-[Chapter24 Saving], [Chapter25 Transferring].

1.2.5 Performing Action

When Trigger Condition is enabled, Action starts and data is written to the designated area of the Excel book.

That's all for the explanations of this Action.

1.3 Upload of GP Log Data

Back-up data can be read online from the GP unit's SRAM or CF Card.

> **NOTE**
> • Referring to the contents described here, you can perform 'Upload of GP Log Data'. However, using [Excel Form Action] enables you to perform 'Upload of GP Log Data' more easily. When performing 'Upload of GP Log Data' actually, it's recommended to use [Excel Form Action].
>
> ☞ Pro-Server EX reference manual-[Chapter 9 Arranging GP Log Data in Excel]

1.3.1 Registering Action Items

> **NOTE**
> • Prior to registering Action, please register entry nodes and symbols.

Name Action to be used and register it.

1 On the [Set ACTION Name/Parameter] dialog box, click the list button of [ACTION Type] and select [Upload of GP Log Data].

Next, enter the Action name, [Upload of Log Data] for [ACTION Name].
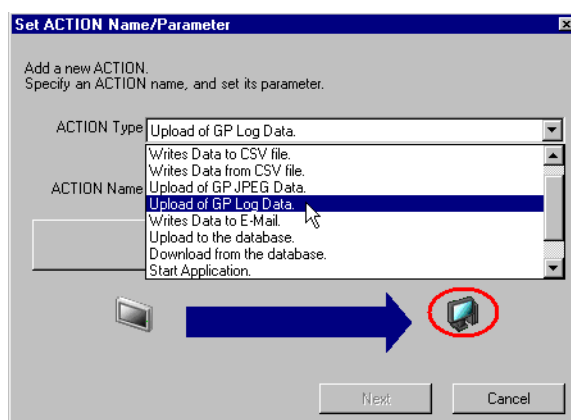
2 Click the [Click here to set the ACTION parameter.] button.

The Action's parameter setup screen will appear.

1.3.2   Setting Action Parameters

1 Set each item of the Action's parameter setup screen.

［Read Location］
Select the reading source from either SRAM or CF Card.

［GP type］
Select GP type as a reading source.

［Data type］

Select data to be read. The following data can be read.

- In the case of GP series node

    Logging Data

    Trend Graph Data

    Sampling Data

    Alarm History Data

    Alarm Log Data

    Alarm Block 1

    Alarm Blcok 2

    Alarm Block 3

    Alarm Block 4

    Alarm Block 5

    Alarm Block 6

    Alarm Block 7

    Alarm Block 8

- In the case of GP3000 series node

    Alarm Block 1

    Alarm Block 2

    Alarm Block 3

    Alarm Block 4

    Alarm Block 5

    Alarm Block 6

    Alarm Block 7

    Alarm Block 8

    Sampling Data

For details of each item, see GP Instruction Guide.

［Save To Folder］

Designate the saving destination folder.

［File Name］

Designate the name of the file that data are saved to. "%Y%M%D%h%m%s" (Year Month Date Hour Minute Second) has been set as default. File names can be designated indirectly. For details, see Pro-Server EX reference manual-[35.1 Specifying a Macro to Use the Same Save File Name for each ACTION]

［Zero Suppress］

If you check this option, no zeroes are supplied to the file name even if the file name includes zeroes "%M%D%h%m%s" (month, day, hour, minute, second).

If you do not check this option, 0 (zero) is added to the file name if the file name includes "%M%D%h%m%s" (month, day, hour, minute, second) data and that number is a single digit. Default is "checked".

［File Save Method］

Select either [Create new Book] or [Append data to Book].

If you designate a fixed file name, it will be written in sheet 2.

［Book is Currently Open］

Select an Action from [Do not save data] or [Use Temporary Book] when books with the same filename are open during writing.

If you select [Do not save data], written data will not be saved and it will be deleted.

If you select [Use Temporary Book], written data will be temporarily saved under a separate filename (the temporary filename will be "%Y%M%D%h%m%s.xls").

［Save form］

Select either Excel (.xls) or text (.csv) file formats. You can also select both file types, and both types of files will be created.

［Template File Location］

If [Use template file] is selected, be sure to enter the Drive, Folder and Template File name.

| NOTE | • The designated template file should contain only Sheet1. |
| | • If you designate the GP unit's CF Card as a reading source, you must designate the file No. to be uploaded when entering Provider information, since more than one file exists in the CF Card. |

2 After clicking the [Next] button, the following dialog box appears.
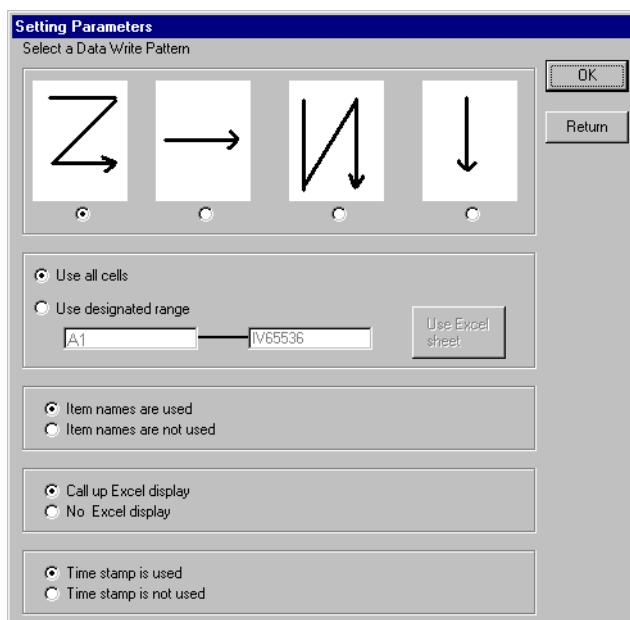
[Select a Data Write Pattern]

Select the write direction of the read data.

[Write Data Range]

Select the write range of the read data.

NOTE • When CSV is selected as the data save format, the [Template] and [Data write] patterns cannot be selected. Settings are fixed to [Data write]:[Z] type, [Use all cells], [Item names are not used], and [Time Stamp is not used].

1.3.3   Setting Trigger Condition

Set trigger conditions to upload logging data.

For setting Trigger Condition, see Pro-Server EX reference manual-[Chapter31 Trigger Conditions].

1.3.4   Saving and transferring the network project file

Save and transfer the setup contents as a network project file.

For saving and transferring a network project file, see Pro-Server EX reference manual- [Chapter24 Saving], [Chapter25 Transferring].

1.3.5   Performing Action

When Trigger Condition is enabled, Action starts and logging data in the backup SRAM or CF Card is read and saved in the designated saving format.

That's all for the explanation of this Action.

1.4 Writing data of the connection device to an Access file

1.4.1 Let's write data of the connection device to an Access file!

[Operation Example]

Detecting 'Rising' of the trigger device (Bit Device: [M01], [M02], [M03]) of the connection device and writing the data to each designated table (Data1, Data2, Data3) of the Access file
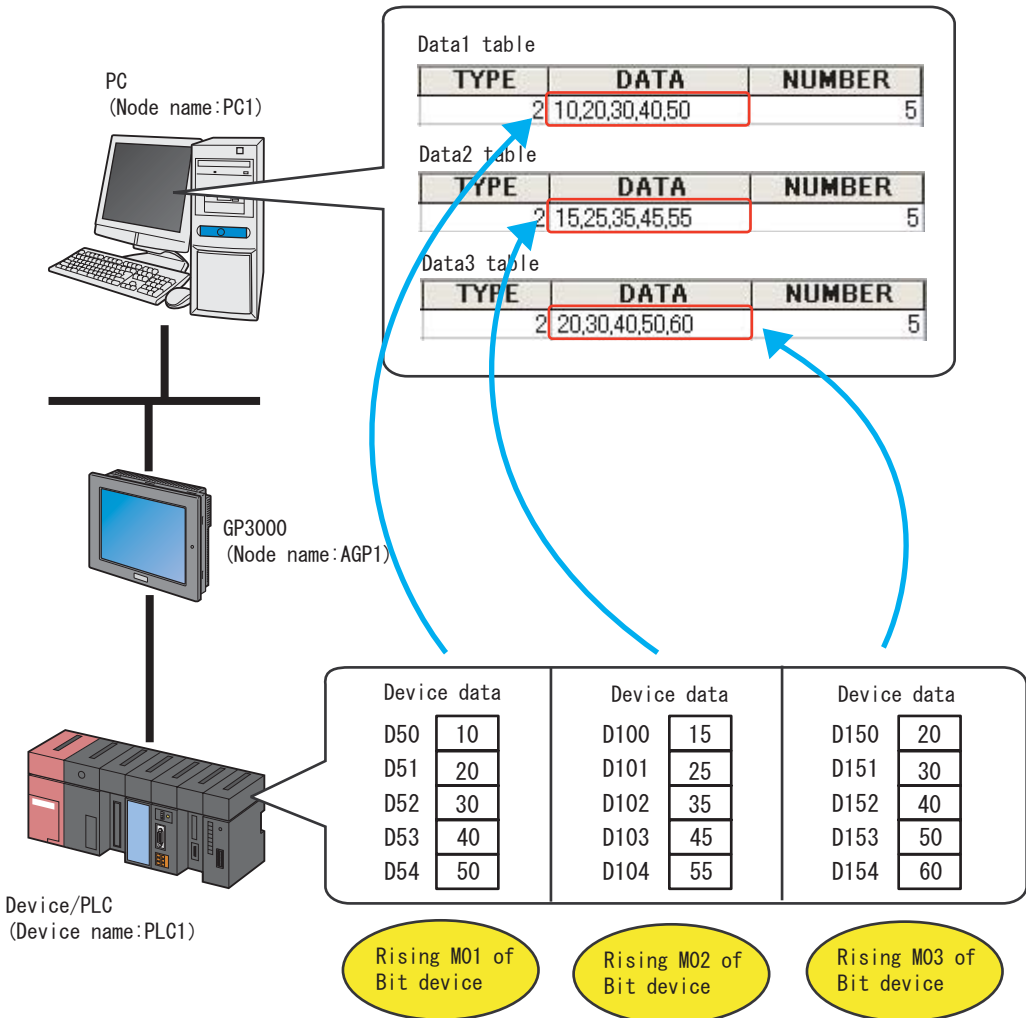
The following explains the settings to perform the Action above as an example in order.

NOTE • Even if you perform this Action multiple times, data will be overwritten and no record will be added. Please be aware of it.

[Setup Procedure]

1	Creating an Access table (Recipe)	Create an Access table that contains the Recipe to be written to device of the connection device.
2	Starting [Pro-Server EX]	Start the Pro-Server EX.
3	Registering entry nodes	Register the PC and the GP as an entry node.
4	Registering symbols	Register the device of the connection device, which is the trigger condition and writing destination, as a symbol.
5	Setting parameters of the function (Action)	Set the following items. • Access Data Folder • Access File Name • Access Table
6	Setting Trigger Condition	Set the trigger condition to write data.
7	Setting data of the Action (Trigger Condition 1)	Set the constant value which is the keycode of the Trigger Condition 1.
8	Setting ACTION Node/Process Completion Notification	Set the Action operation node and Yes/No of the notice that the Action has been performed.
9	Setting data of the Action (Trigger Condition 2,3)	Set the constant values which are the keycodes of Trigger Condition 2 and 3.
10	Confirming the setup contents	Confirm the setup contents in the setup contents list screen.
11	Saving the network project file	Save the setup contents as a network project file.
12	Transferring the network project file	Transfer the saved network project file to the GP.
13	Performing the Action	Confirm that data of the Access file is written to the device when the setup trigger condition is enabled.

■ Creating an Access table

Create an Access table where data is written and a table that designates device to read data.

1 Start [Microsoft Access] and create the following tables.

◆ Recipe DB Master Table (Table Name: Access Table)

[Pro-Server EX] refers to [Constant Value] of the transfer source set in 'Transfer Data' (⑦ , ⑨ Setting data of the Action) and [KEYCODE] on the master table, and acquires information of 'Recipe Information Table'.

KEYCODE	MDB	TBL
1	C:\Documents and Settings\Administrator\Desktop\Filename	Data1
2	C:\Documents and Settings\Administrator\Desktop\Filename	Data2
3	C:\Documents and Settings\Administrator\Desktop\Filename	Data3

Contents of each item in the table are as follows;

[KEYCODE] Field　（In the example, [KEYCODE]）
Field to be compared with Transfer Data ([Constant Value] of the transfer source). The field on the Access is [Number].

[Access File Name] Field (In the example, [MDB])
Field to designate the Access file including the table designated by [TBL].
If the table to designate is included in the same file where the recipe DB master table is set, it can be left blank.

[Recipe Information Table Name] Field (In the example, [TBL]）
Field to designate the table where the data read source node and the symbol (device address) are set.

◆ Recipe Information Table

Pro-Server EX writes data to the [DATA] column of the designated table.

• Data1

NODE	SYMBOL	TYPE	DATA	NUMBER
PLC1	D50 data	2		5

• Data2

NODE	SYMBOL	TYPE	DATA	NUMBER
PLC1	D100 data	2		5

• Data3

NODE	SYMBOL	TYPE	DATA	NUMBER
PLC1	D150 data	2		5

Contents of each item in the table are as follows;

[Node Name] Field (In the example, [NODE])

Field to designate the read data source node.

[Symbol Name] Field (In the example, [SYMBOL])

Field to designate the head (first address) of the symbol (device address) of the read source.

[Data Type] Field (In the example, [TYPE]).

Field to designate the type of data to be read.

The data type is designated with values according to the table below.

Value	Data Type	Value	Data Type
1	Bit	7	Unsigned 32 bits decimal
2	Signed 16 bits decimal	8	32 bits hexadecimal
3	Unsigned 16 bits decimal	9	BCD 32 bits
4	16 bits hexadecimal	10	Single precision floating point
5	BCD 16 bits	11	Double precision floating point
6	Signed 32 bits decimal	12	Character string

[Data] Field (In the example, [DATA])

Field where the read out data is written. If more than one sequential data item is read, each data item is written separated with a comma.

[Number] Field (In the example, [NUMBER])

Field to designate the amount of sequential data to be read, starting from the symbol (device address) designated by [SYMBOL].

NOTE
- If you change the field name of each table, click the [Field Name Details] button on the Action's parameter setting dialog and do it from the [Setting Parameters] dialog.
- The sample file (ProRcp.mdb) of [Recipe DB Master Table] and [Recipe Information Table] is included in the [Pro-SDK] folder of the installation disk. You can use it as a template when creating a table.

---

2 After creating them, save them with the file name, 'accesstable.mdb' in the PC's desktop.

■ Starting Pro-Studio EX

Start Pro-Studio EX.

For details of the starting method, see [Chapter 3 Trial of Pro-Server EX].

■ Registering entry nodes

Register the PC and the GP which are connected to the network as entry nodes.

For details of entry nodes, see **Pro-Server EX reference manual**- [Chapter29 Node Registration].

Node Name:PC1

IP address:192.168.0.1

Node Name:AGP1

IP address:192.168.0.100

Device/PLC Information

Setting Ex.

PC

• Node name : PC1
• IP address : 192.168.0.1

GP
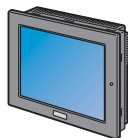
• Model : GP3000 series
• Node name : AGP1
• IP address : 192.168.0.100

■ Registering symbols

Register the device of the connection device, which is the trigger condition and the device to read data as symbols.

For details of symbols, see Pro-Server EX reference manual-[Chapter30 Symbol Registration].
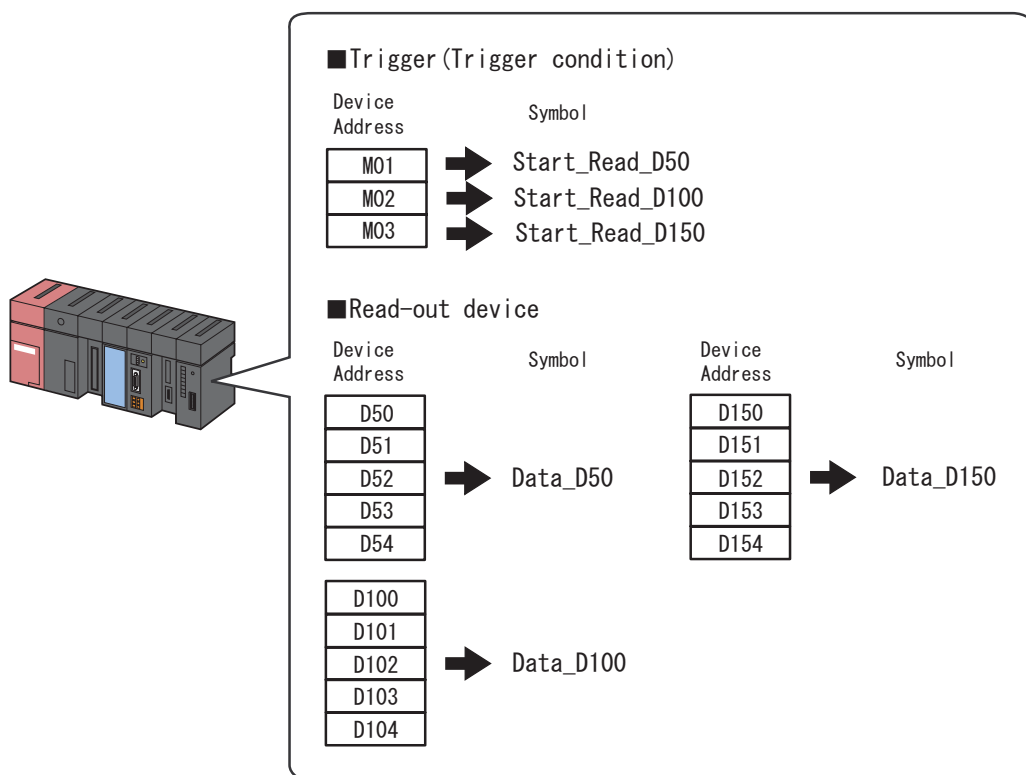
Setting Ex.

• Trigger (Trigger Condition)

Setting Items	Setting Details		
Symbol Name	Start_Read_D50	Start_Read_D100	Start_Read_D150
Data Type	Bit		
Device Address to be registered as a symbol	[M01] of Connection Device (PLC1)	[M02] of Connection Device (PLC1)	[M03] of Connection Device (PLC1)
Number of devices	1	1	1

• Device to be read

Setting Items	Setting Details		
Symbol Name	D50 data	D100 data	D150 data
Data Type	16Bit（Signed）		
Device Address to be registered as a symbol	[D50] to [D54] of Connection Device (PLC1)	[D100] to [D104] of Connection Device (PLC1)	[D150] to [D154] of Connection Device (PLC1)
Number of devices	5	5	5

■ Setting parameters of the function (Action)

Set parameters to write data to the Access file.

For details of Action's Parameter, see [1.4.2   Setup Guidance].
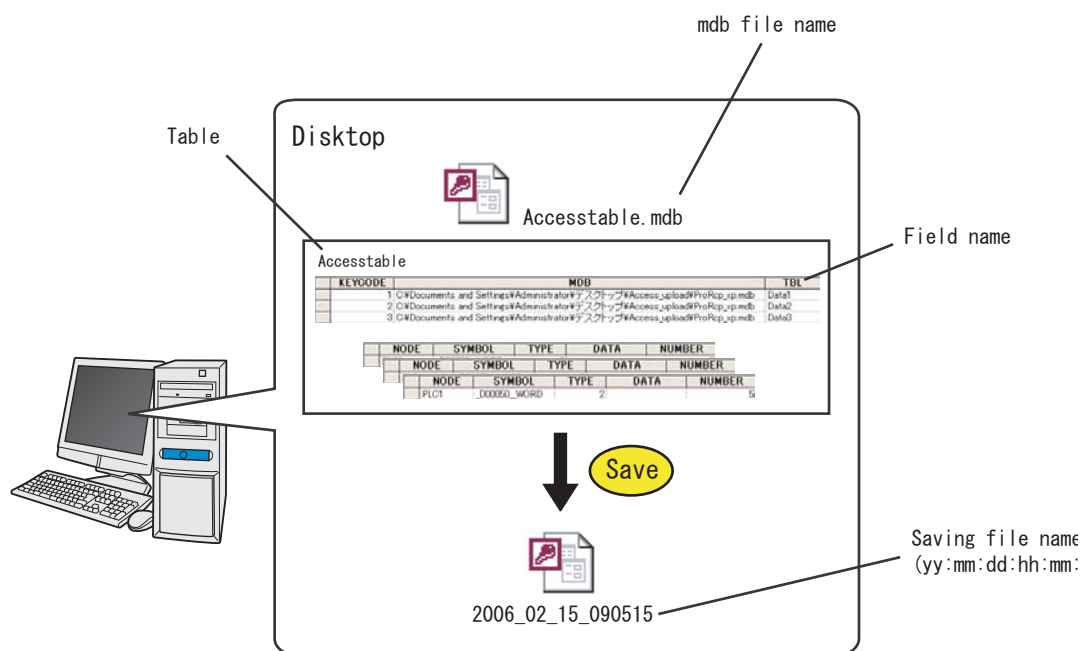
Setting Ex.

Setting Items	Setting Details
ACTION Name	Access Upload
Access Data Folder	C:\Documents and Settings\Administrator\Desktop
Mdb Filename	Accesstable.mdb
Table	Access Table
Save Folder	C:\Documents and Settings\Administrator\Desktop
Save Filename	%Y%M%D%h%m%s （Year Month Day Hour Minute Second）
Zero Suppress	Not checked

1 Click the tool bar's [Feature] icon.
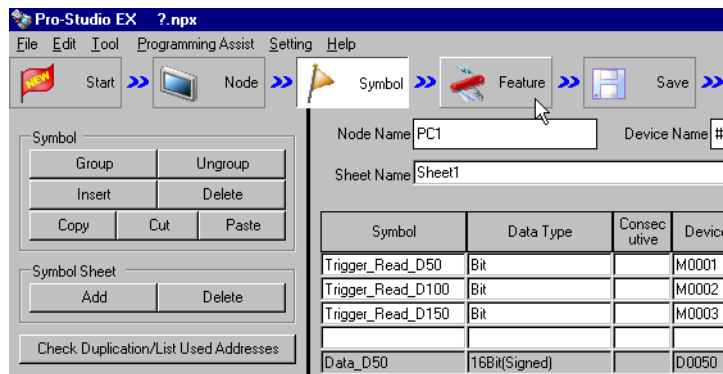
2 Select [ACTION] from the tree display on the left of the screen and click the [Add] button.
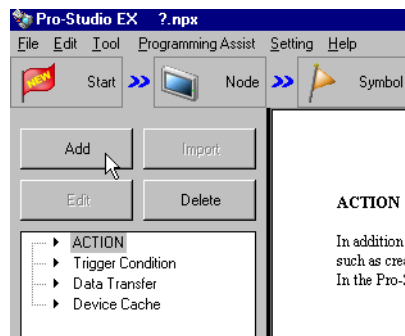
3 Check [Display the Actions of the old version of Pro-Server].
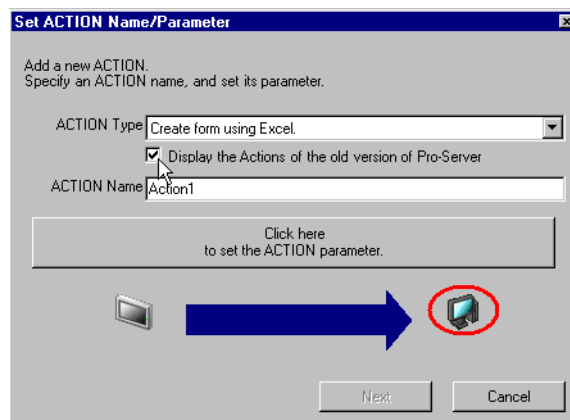
4 Click the list button of [ACTION Type] and select [Automatic Upload of Access Data].

Next, enter the action name to be set, [Access Upload] for [ACTION Name].

NOTE • An arbitrary action name can be set for [ACTION Name].
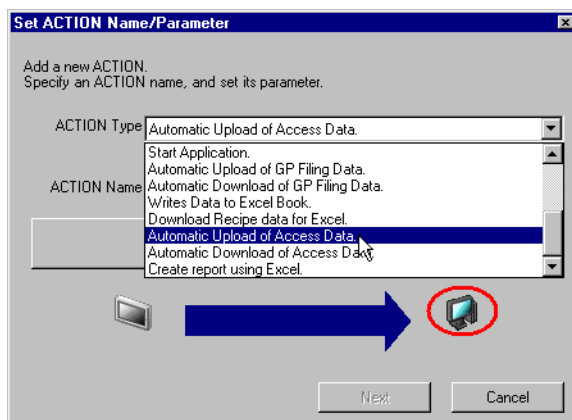
5 Click [Click here to set the Action parameter.〕.
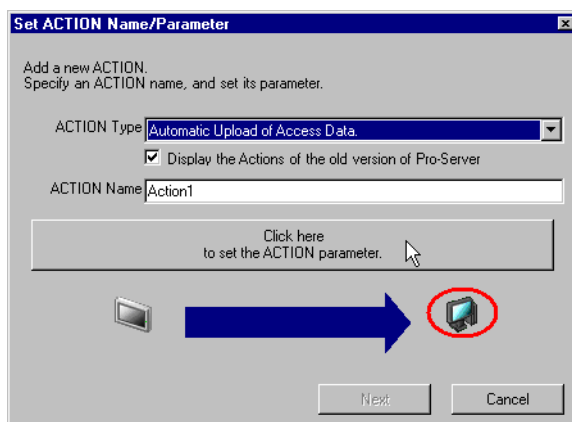
6 Make settings concerning the Access file.

1) Designate the file-saving destination, [Desktop] for the list box of [Access Data Folder].
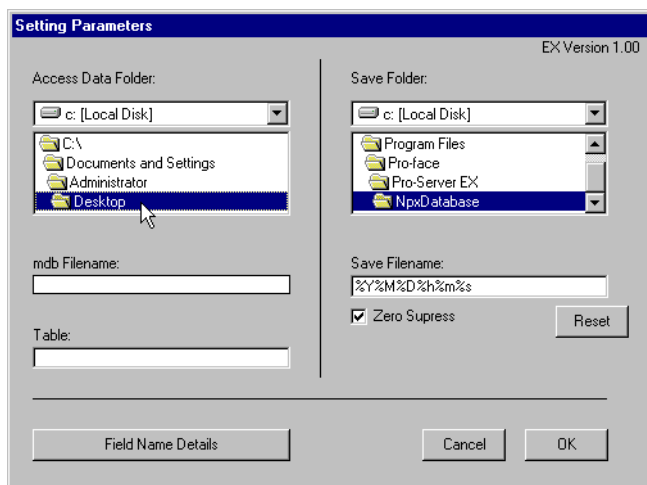
2) Select the Access table file, [accesstable.mdb] for [mdb Filename]. After selecting it, click the displayed mdb file name and confirm the setting.

（If you do not confirm it, the table name to be set next will not be displayed.）
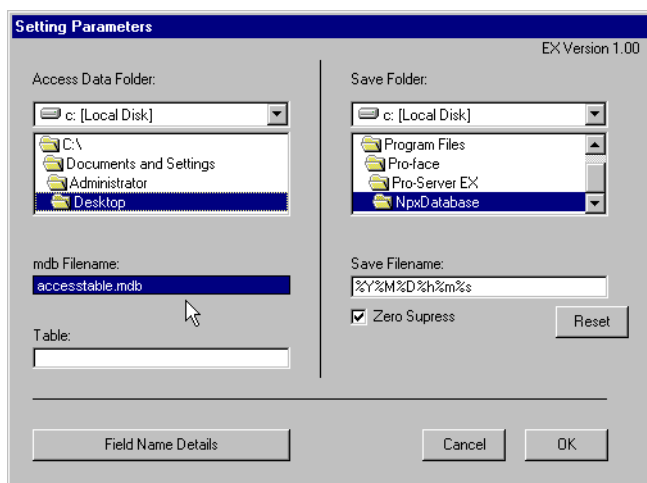
3) The table name included in the [accesstable.mdb] file is displayed for [Table] and select the table name, [Access Table] which is the reference destination of the constant value to be transferred. After selecting it, click the displayed table name and confirm the setting.

7 Make settings concerning the save file.

1) Designate the save destination folder of the file where data is written, [Desktop] for [Save Folder] and set the default, [%Y%M%D%h%m%s] for [Save Filename].

2) If [Zero Suppress] is checked, uncheck it.

What is "%Y%M%D%h%m%s"?

A file name is created in the format of the time when data is written, [Year_Month_Day_HourMinuteSecond] （Ex.）Data was written at 9:50:15(hour, minute, second) on Feb. 15, 2006. The file name is [2006_02_15_095015].

---

8 Click the [OK] button.

The setting of the function (Action) is now completed.

■ Setting Trigger Condition

Set the trigger condition (Trigger Bit ON) to read device data.

Set 3 patterns for the trigger condition.

For details of the trigger condition, see [Chapter31 Trigger Conditions].

Setting Ex.

- • Trigger Condition 1 (D50 READ)
  - • Trigger Condition Name : Turn_ON_Read_Start_Bit_D50
  - • Trigger Condition   : When [Read Start Bit D50] (M01) is turned ON
- • Trigger Condition 2 (D100 READ)
  - • Trigger Condition Name : Turn_ON_Read_Start_Bit_D100
  - • Trigger Condition   : When [Read Start Bit D100] (M02) is turned ON
- • Trigger Condition 3 (D150 READ)
  - • Trigger Condition Name : Turn_ON_Read_Start_Bit_D150
  - • Trigger Condition   : When [Read Start Bit D150] (M03) is turned ON

1 Click [Next] on the [Set ACTION Name/Parameter] dialog box.
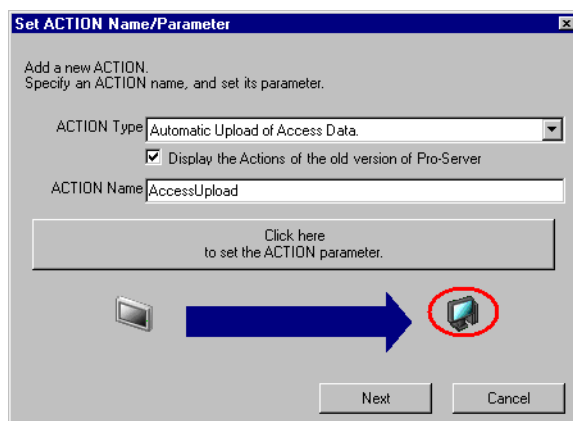
2 Click the [New Trigger Condition] button.
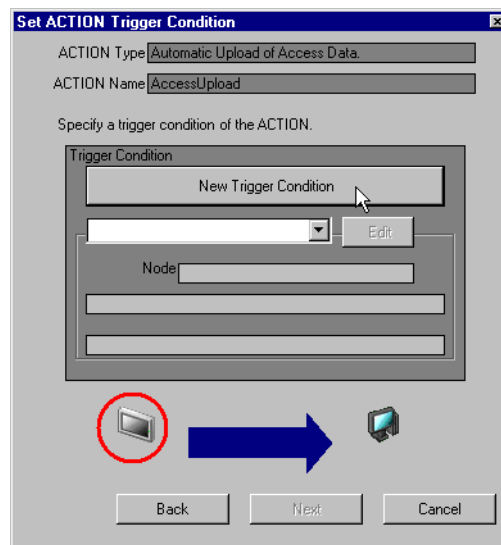
3 Enter [Turn_ON_Read_Start_Bit_D50] for ［Trigger Condition Name］and select [AGP1] which has the device that is the trigger condition for [Node Name].
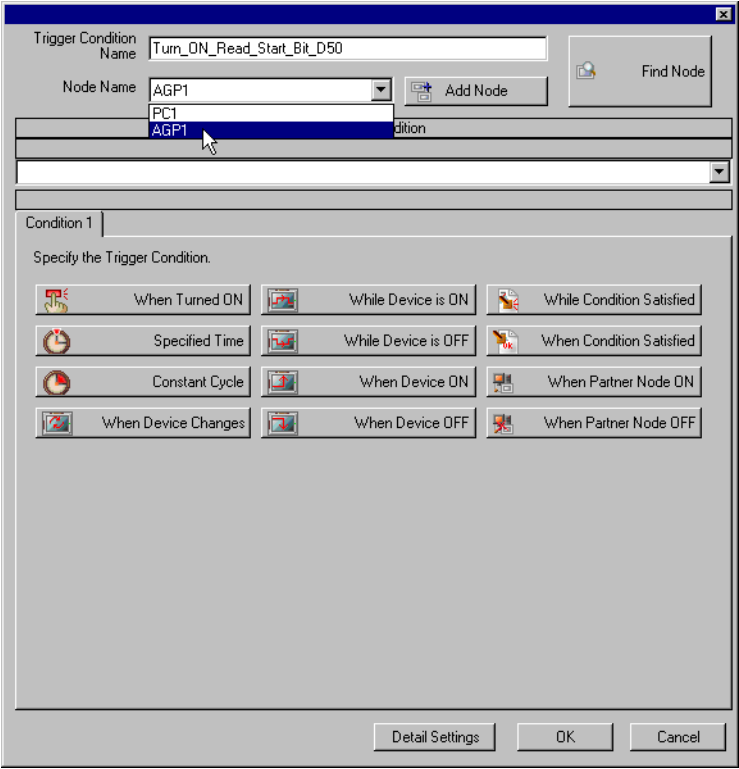
\

| NOTE | • Designate the entry node which has the device that is the trigger condition or the entry node which has data to be transferred for the node here. |

☞ Pro-Server EX reference manual-[Chapter31 Trigger Conditions]

4 Click the [When Device ON] button of the [Condition 1] tab and select [PLC1] for Device Name.
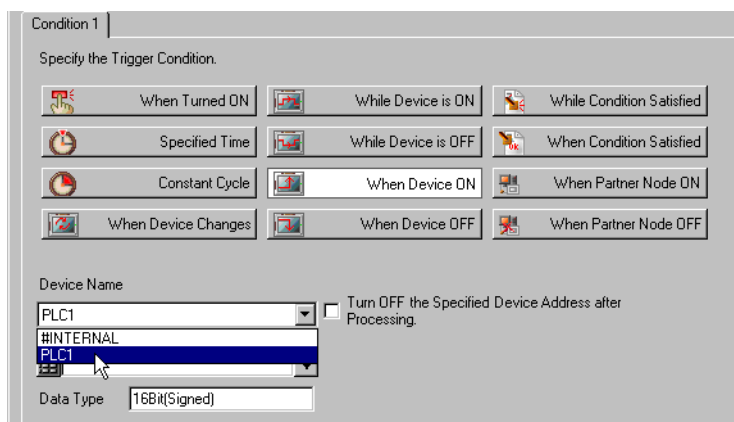
5 Click the list button of [Device Address] and select [Start_Read_D50] which is the symbol name of the device that is the trigger.

After selecting it, [Data Type] is automatically displayed, too.

NOTE

• The trigger condition can be set with combination of 2 kinds of different conditions ([and Condition], [or Condition]).

☞ Pro-Server EX reference manual-[Chapter31 Trigger Conditions]

6 Click the [OK] button.

7 Click the [New Trigger Condition] button in order to add Trigger Condition 2.

8 Set the following items in the same steps as Trigger Condition 1 and click the [OK] button.

- Trigger Condition Name ： Turn_ON_Read_Start_Bit_D100

- Node Name ： AGP1

- Trigger Condition ： When Device ON

- Device Name ： PLC1

- Device ： Start_Read_D100

9 After clicking the [New Trigger Condition] button in order to add Trigger Condition 3, set the following items in the same steps as Trigger Condition 1 and click the [OK] button.

- Trigger Condition Name：Turn_ON_Read_Start_Bit_D15
- Node Name：AGP1
- Trigger Condition：When Device ON
- Device Name：PLC1
- Device：Start_Read_D150

The settings of Trigger Condition are now completed.

■ Setting data of the Action (Trigger Condition 1)

Set the data (Constant Value) to be transferred when the Action performs.

NOTE • Set only the constant value, [1] of Trigger Condition 1 in this screen. Add the constant values of Trigger Condition 2 and 3 after setting the Action.

Setting Ex.

• The constant value to be transferred： 1

1 On the [Set ACTION Trigger Condition] dialog box, click the list button of［Trigger Condition］and select [Turn_ON_Read_Start_Bit_D50] and click the [Next] button.

2 Click [Constant Value] and after that, enter the constant value to be transferred, [1] in the text box.

3 Set [1] for [No.] of the Constant Value.

The data settings of Trigger Condition 1 are now completed.

■ Setting ACTION Node/Process Completion Notification

Set the node name where the Action performs and Yes/No of the notice that the Action has performed.

Setting Ex.

- ACTION Node : PC1
- Receive Notification Exists : Not checked

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

2 Click the list button of [ACTION Node] and select [PC1] for the name of the node where the Action performs.

3 If [Receive Notification Exists] is checked, uncheck it.

| NOTE | • If [Receive Notification] is set, after the Action is completed, the designated bit device turns ON. If more than one Action is performed sequentially, that designated bit device can be used for the trigger condition of the next Action. |

☞ Pro-Server EX reference manual-[Chapter31 Trigger Conditions]

4 Click the [Complete] button.

The [Set ACTION Node/Process Completion Notification] screen closes and the setup Action name and trigger condition names are displayed on the left of the screen.
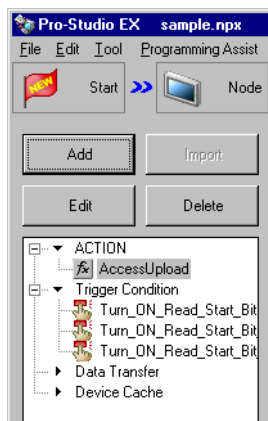
The settings of 'ACTION Node/Process Completion Notification' are now completed.

■ Setting data of the Action (Trigger Condition 2,3)

Set the constant values of Trigger Condition 2 and 3.

Setting Ex.

- Transfer Source Device Name   : PLC1
- The constant value to be transferred for Trigger Condition 2：2
- The constant value to be transferred for Trigger Condition 3：3

1 Click the [ACTION-Specific Trigger Condition/Process List, Add］button.
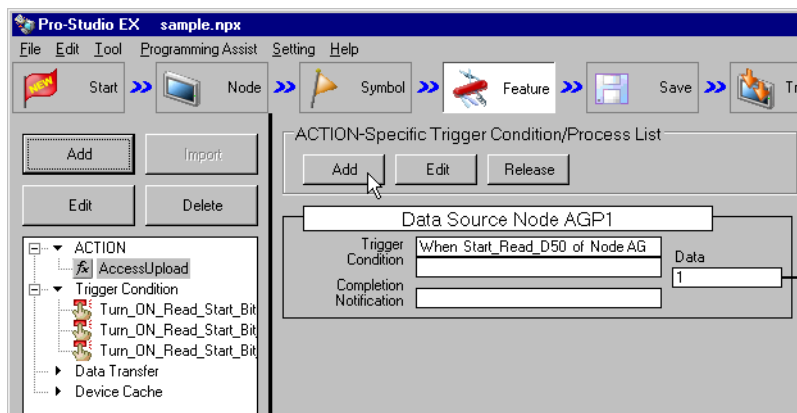
2 Click the list button of [Trigger Condition] and select [Turn_ON_Read_ Start_Bit_D100]. Then click the [Next] button.
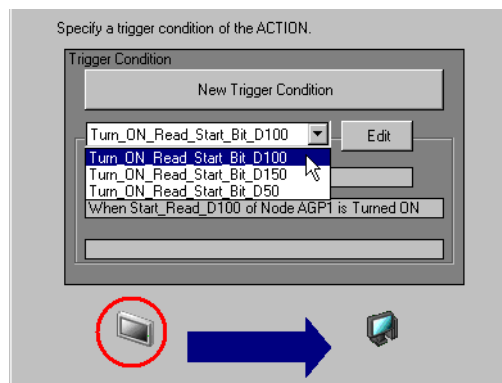
3 Click [Constant Value] and enter the constant value, 「2」.
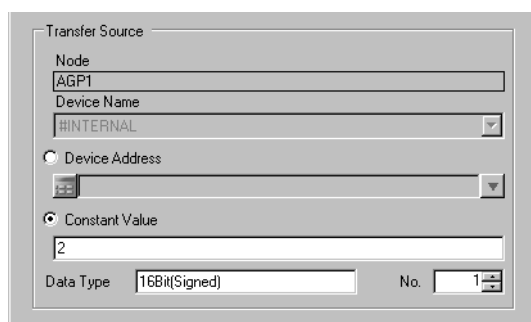
4 Click the [Next] button.
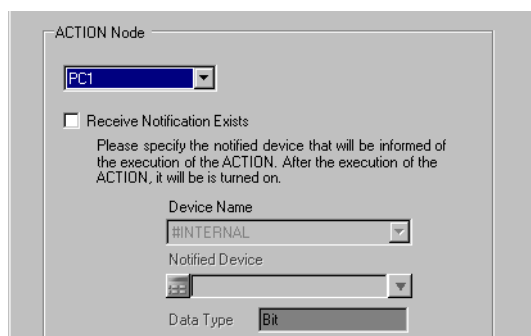
5 After selecting [PC1] for [ACTION Node］, click the [Complete] button.

6 After clicking the [ACTION-Specific Trigger Condition/Process List, Add] button and selecting [Turn_ON_Read_ Start_Bit_D150] from the list button, set the constant value, [3] in the same way.
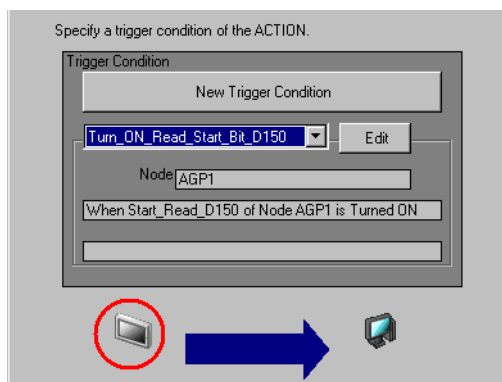
The settings of Trigger Condition 2 and 3 are now completed.

■ Confirming the setup contents

Confirm the setup contents in the setup contents list screen.

1 From the tree display on the left of the screen, click the Action name, [Access Upload].

Confirm that the setup contents are displayed on the right of the screen.

2 Click each trigger condition name from the tree display on the left of the screen.

Confirm that the setup contents are displayed on the right of the screen.

That's all for confirming the setup contents.

■ Saving the network project file

Save the setup contents as a network project file.

For saving the network project file, see Pro-Server EX reference manual-[Chapter24 Saving].

| NOTE | • Pro-Server EX reads the network project file and executes the Action according to the setup contents in it. Therefore, be sure to save the setup contents as a network project file. |

Setting Ex.

- Save Destination of the network project file : Desktop\Access_upload.npx
- Title : Access Upload Action

■ Transferring the network project file

Transfer the saved network project file to the entry node.

For transferring the network project file, see Pro-Server EX reference manual-[Chapter25 Transferring].

| NOTE | • Be sure to transfer the network project file. If it's not transferred, the Action will not perform. |

Setting Ex.

- Transfer Destination : AGP1

■ Performing the Action

Confirm that 5 device data are written to the Access file on the PC's desktop (the filename: %Y%M%D%h%m%s(YearMonthDayHourMinuteSecond).mdb) when any trigger condition is enabled.

That's all for the explanation of this Action.

1.4.2   Setup Guidance

In this section, the detailed setup method of 'Action's parameter' will be explained.

Setting Items	Setting Details
Access Data Folder	Designate the Access file folder for reference. At default, the folders in C Drive (C:) are displayed. To change the displayed drive, click the list button and select the desired drive.
mdb File name	Designate the Access file name for reference.
Table	Designate the Access file table name for reference. If you designate 'mdb file', the table in the mdb file will be automatically displayed.
Save Folder	Select the save destination folder of the created Access file. At default, the folders in C drive (C:) are displayed. To change the displayed drive, click the list button and select the desired drive.
Save Filename	Designate the save file name. At default, [%Y%M%D%h%m%s] is displayed. If you do not change the file name, the PC's time data is set in the part of [%]. In this case, each of 'Year/Month/Day/Time' is separated with "_" (underbar). （Ex.）（Written at 9:50:15 (hour:minute:second) on Feb. 15, 2006.） 2006_02_15_095015 **NOTE** • If you designate a macro sign for Save Filename, it's possible to set the file name for the entry node name or device data. ☞ Pro-Server EX reference manual-[35.1 Specifying a Macro to Use the Same Save File Name for each ACTION]
Zero Suppress	When [%Y%M%D%h%m%s] is set for Save Filename, if you check this, 0's digit position in the [%] part is not displayed. （Ex.） When [%h%m] is set for Save Filename, the file name written at 7:31(hour:minute) Checked：•••_7_31•••.mdb Unchecked：•••_07_31•••.mdb
Field Name Details	The [Setting Parameters] screen of the field name of [Recipe DB Master Table], [Recipe Information Table] will be displayed. For details, see [■ Field Name Details Setup Screen].

◆ Field Name Details Setup Screen

Setting Items		Setting Details
Recipe DB Master Table	Keycode	Set a field name for [Keycode].
	Access file name	Set a field name for [Access file name].
	Recipe Information Table name	Set a field name for [Recipe Information Table name].
Recipe Information Table	Node name	Set a field name for [Node name].
	Symbol name	Set a field name for [Symbol name].
	Data Type	Set a field name for [Data Type].
	Data	Set a field name for [Data].
	Number	Set a field name for [Number].

1.5 Writing Access file data to the connection device

1.5.1 Let's write Access file data to the connection device!

[Operation Example]

Detecting 'Rising' of the trigger devices (Bit Device: [M01], [M02], [M03]) of the connection device and writing the setup data corresponding to the trigger device in the Access file into the device address (word device) of the connection device.
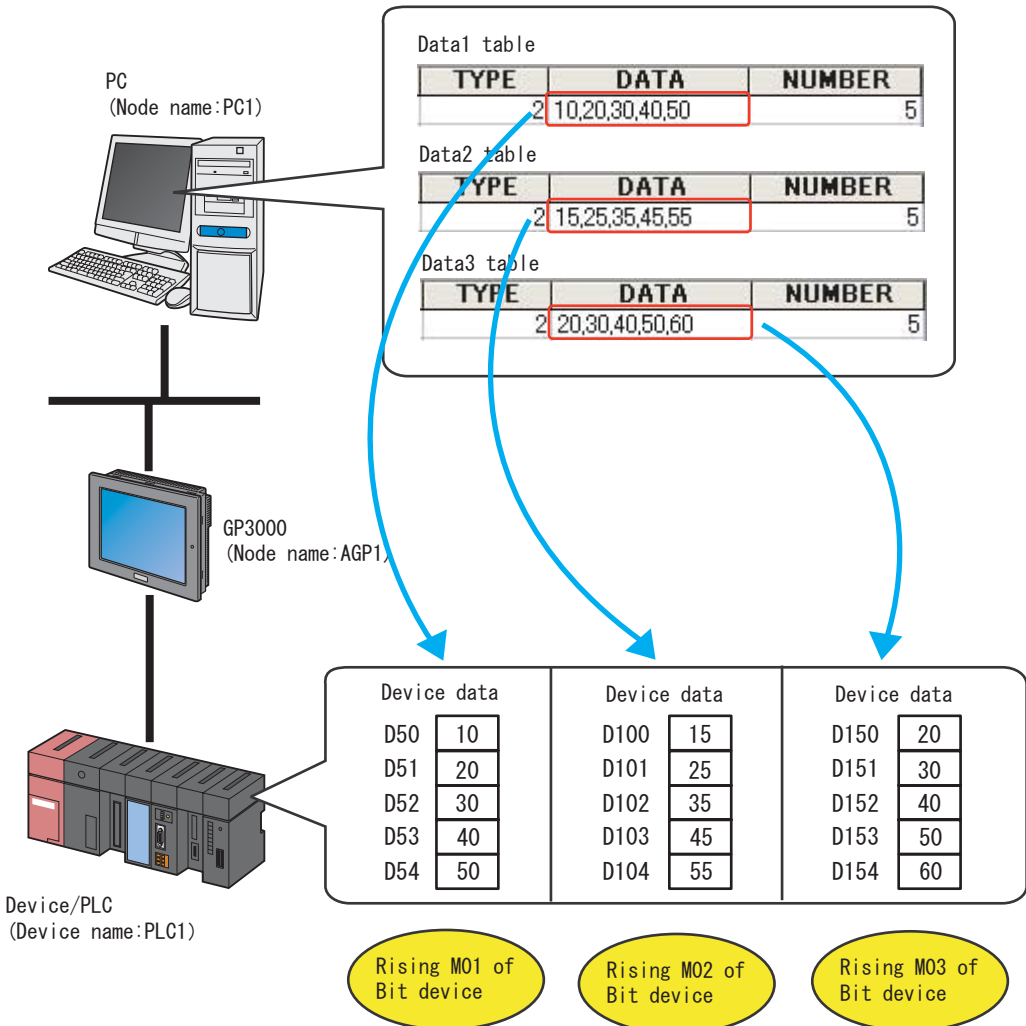
In this section, as an example, settings to perform the Action above will be explained in order.

[Setup Procedure]

1	Creating an Access table (Recipe)	Create an Access table that contains the Recipe to be written to device of the connection device.
2	Starting [Pro-Server EX]	Start the Pro-Server EX.
3	Registering entry nodes	Register the PC and the GP as an entry node.
4	Registering symbols	Register the device of the connection device, which is the trigger condition and writing destination, as a symbol.
5	Setting parameters of the function (Action)	Set the following items. • Access Data Folder • Access File Name • Access Table
6	Setting Trigger Condition	Set the trigger condition to write data.
7	Setting data of the Action (Trigger Condition 1)	Set the constant value which is the keycode of the Trigger Condition 1.
8	Setting ACTION Node/Process Completion Notification	Set the Action's operation node and Yes/No of the notice that the Action has been performed.
9	Setting data of the Action (Trigger Condition2, 3)	Set the constant values which are the keycodes of Trigger Condition 2 and 3.
10	Confirming the setup contents	Confirm the setup contents in the setup contents list screen.
11	Saving the network project file	Save the setup contents as a network project file.
12	Transferring the network project file	Transfer the saved network project file to the GP.
13	Performing the Action	Confirm that data of the Access file is written to the device when the setup trigger condition is enabled.

■ Creating an Access table (Recipe)

Create an Access table where data is read and a table that designates device to write data.

1 Start [Microsoft Access] and create the following tables.

◆ Recipe DB Master Table (Table Name：Access Table)

[Pro-Server EX] refers to [Constant Value] of the transfer source set in 'Transfer Data' (⑦ , ⑨ Setting data of the Action) and [KEYCODE] on the master table, and acquires information of [Recipe Information Table].

KEYCODE	MDB	TBL
1	C:\Documents and Settings\Administrator\Desktop\Filename	Data1
2	C:\Documents and Settings\Administrator\Desktop\Filename	Data2
3	C:\Documents and Settings\Administrator\Desktop\Filename	Data3

Contents of each item in the table are as follows;

[KEYCODE] Field (In the example, [KEYCODE])

Field to be compared with Transfer Data ([Constant Value] of the transfer source). The field on the Access is [Number].

[Access File Name] Field (In the example, [MDB])

Field to designate the Access file including the table designated by [TBL].

If the table to designate is included in the same file where the recipe DB master table is set, it can be left blank.

[Recipe Information Table Name] Field (In the example, [TBL])

Field to designate the table where the data write destination node and the symbol (device address) are set.

◆ Recipe Information Table

Pro-Server EX acquires data in the [DATA] column of the designated table.

• Data1

NODE	SYMBOL	TYPE	DATA	NUMBER
PLC1	D50 data	2	10 20 30 40 50	5

• Data2

NODE	SYMBOL	TYPE	DATA	NUMBER
PLC1	D100 data	2	60 70 80 90 100	5

• Data3

NODE	SYMBOL	TYPE	DATA	NUMBER
PLC1	D150 data	2	110 120 130 140 150	5

Contents of each item in the table are as follows;

[Node Name] Field (In the example, [NODE])

Field to designate the data write destination node.

[Symbol Name] Field (In the example, [SYMBOL])

Field to designate the head (first address) of the symbol (device address) of the write destination.

[Data Type] Field (In the example, [TYPE]).

Field to designate the type of data to be written.

The data type is designated with values according to the table below.

Value	Data Type	Value	Data Type
1	Bit	7	Unsigned 32 bits decimal
2	Signed 16 bits decimal	8	32 bits hexadecimal
3	Unsigned 16 bits decimal	9	BCD 32 bits
4	16 bits hexadecimal	10	Single precision floating point
5	BCD 16 bits	11	Double precision floating point
6	Signed 32 bits decimal	12	Character string

[Data] Field (In the example, [DATA])

Field to designate data to be written. If more than one sequential data is written, each data should be separated with a space or a comma.

[Number] Field (In the example, [NUMBER]).

Field to designate the amount of sequential data to be written, starting from the symbol (device address) designated by [SYMBOL].

NOTE
- If you change the field name of each table, click the [Field Name Details]button on the Action's parameter setting dialog and do it from the [Setting Parameters]dialog.
- The sample file (ProRcp.mdb) of [Recipe DB Master Table] and [Recipe Information Table] is included in the [Pro-SDK] folder of the installation disk. You can use it as a template when creating a table.

2 After creating them, save them with the file name, 'accessdata.mdb' in the PC's desktop.

■ Starting Pro-Server EX

For details of the starting method, see Pro-Server EX reference manual-[Chapter 3 Trial of Pro-Server EX].

■ Registering entry nodes

Register the PC and the GP which are connected to the network as entry nodes.

For details of entry nodes, see Pro-Server EX reference manual-[Chapter29 Node Registration].

Node Name:PC1

IP address:192.168.0.1

Node Name:AGP1

IP address:192.168.0.100

Device/PLC Information

Setting Ex.

PC

- Node name   : PC1
- IP address   : 192.168.0.1

GP
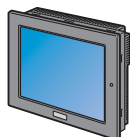
- Model   : GP3000 series
- Node name   : AGP1
- IP address   : 192.168.0.100

■ Registering symbols

Register the device of the connection device, which is the trigger condition (Trigger) and the device of the connection device, which is the data write destination as symbols.

For details of symbols, see Pro-Server EX reference manual-[Chapter30 Symbol Registration]

Setting Ex.

• Trigger (Trigger Condition)

Setting Items	Setting Details		
Symbol Name	Start_Write_D50	Start_Write_D100	Start_Write_D150
Data Type	Bit		
Device Address to be registered as a symbol	[M01] of Connection Device (PLC1)	[M02] of Connection Device (PLC1)	[M03] of Connection Device (PLC1)
Number of devices	1	1	1

• Device to be written

Setting Items	Setting Details		
Symbol Name	D50 data	D100 data	D150 data
Data Type	16Bit（Signed）		
Device Address to be registered as a symbol	[D50] to [D54] of Connection Device（PLC1）	[D100] to [D104] of Connection Device (PLC1)	[D150] to [D154] of Connection Device（PLC1）
Number of devices	5	5	5

■ Setting parameters of the function (Action)

Set parameters to write the Access file data to the connection device.

For details of Action's Parameter, see [1.5.2 Setup Guidance].

Setting Ex.

Setting Items	Device Data
ACTION Name	Access Download
Access Data Folder	C:\Documents and Settings\Administrator\Desktop
Mdb Filename	accessdata.mdb
Table	Access Table

1 Click the toolbar's [Feature] icon.
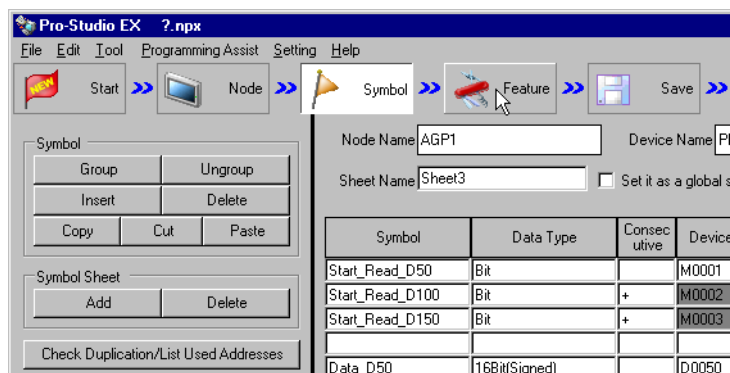
2 From the tree display on the left of the screen, select [ACTION] and click the [Add] button.
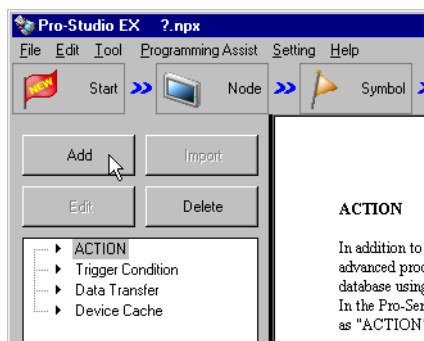
3 Check [Display the Action of the old version of Pro-Server].
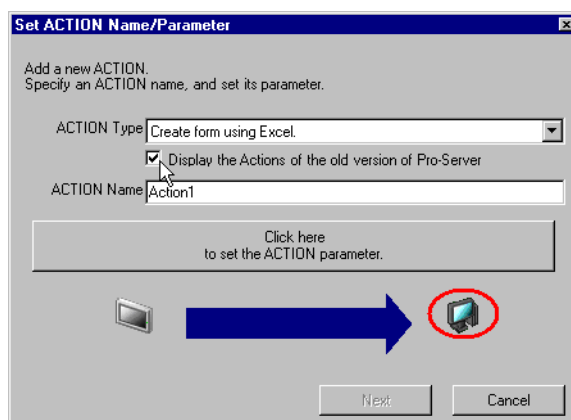
4 Click the list button of [ACTION Type] and select [Automatic Download of Access Data].

Next, enter the Action name to be set, [Access Download] for [ACTION Name］.

NOTE • An arbitrary Action name can be set for [ACTION Name].
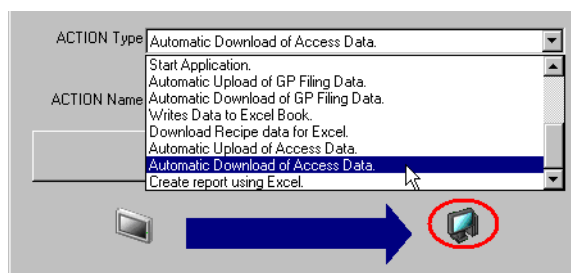
5 Click the [Click here to set the ACTION parameter] button.
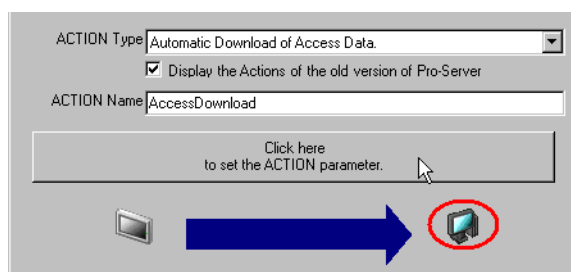
6 Make the settings concerning the Access file.

1) Set the file's save destination, [Desktop] in the list box of [Access Data Folder].
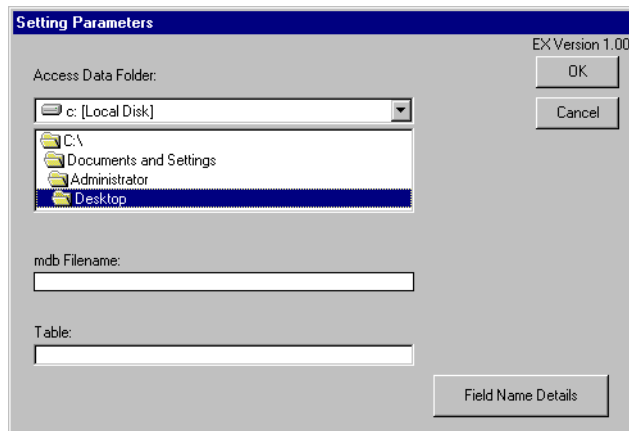
2) Select the Access Table (Recipe) file, [accessdata.mdb] for [mdb Filename]. After selecting it, click the dis-
played mdb file name and confirm the setting.（If you do not confirm it, the table name to be set next will not
be displayed.）
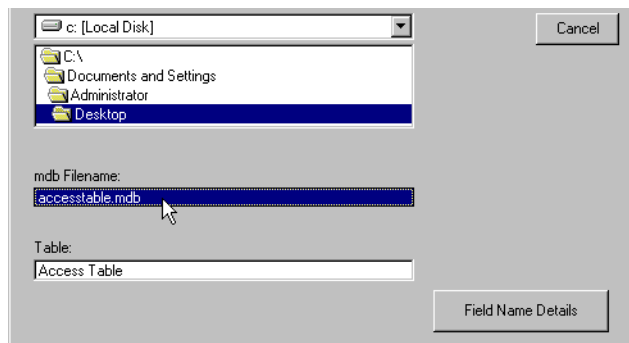
3) The table name included in the [accessdata.mdb] file is displayed for [Table]. Select the table name, [Access Table] which is the reference destination of the constant value to be transferred. After selecting it, click the displayed table name and confirm the setting.
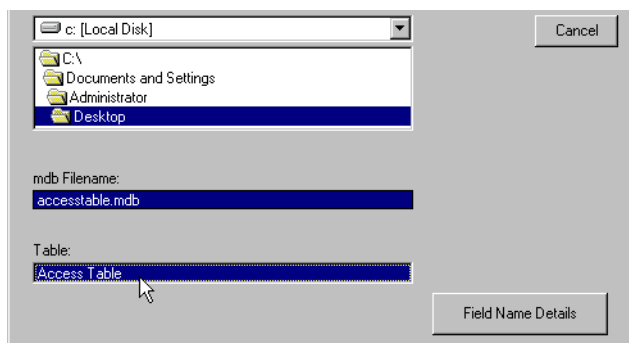
7 Click the [OK] button.

The setting of the function (Action) is now completed.

■ Setting Trigger Condition

Set the trigger condition (Trigger Bit ON) to write device data.

Set 3 patterns for the trigger condition.

For details of the trigger condition, see Pro-Server EX reference manual-[Chapter31 Trigger Conditions].

Setting Ex.

- Trigger Condition 1 （D50 WRITE）
    - Trigger Condition Name : Turn_ON_Write_Start_Bit_D50
    - Trigger Condition : When [Write Start Bit D50] (M01) is turned ON
- Trigger Condition 2 （D100 WRITE）
    - Trigger Condition Name : Turn_ON_Write_Start_Bit_ D100
    - Trigger Condition : When [Write Start Bit D100] (M02) is turned ON
- Trigger Condition 3 （D150 WRITE）
    - Trigger Condition Name : Turn_ON_Write_Start_Bit_D150
    - Trigger Condition : When [Write Start Bit D150] (M03) is turned ON

1 Click [Next] on the [Set ACTION Name/Parameter] dialog box.
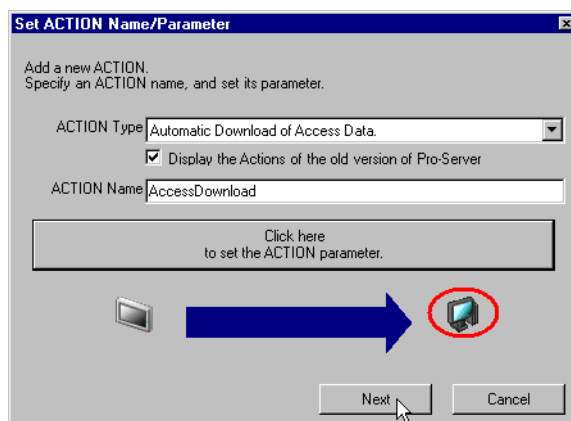
2 Click the [New Trigger Condition] button.
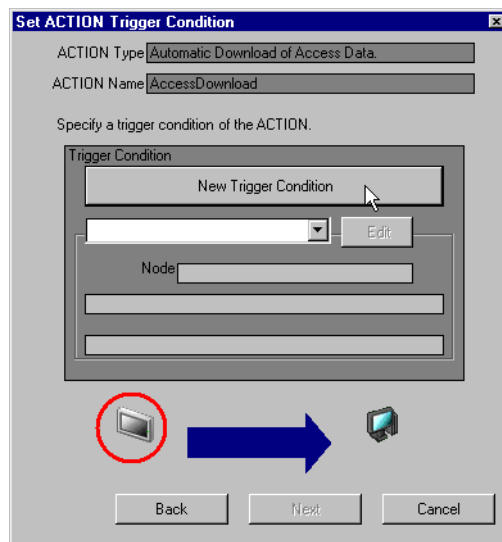
3 Enter [Turn_ON_Write_Start_Bit_D50] for [Trigger Condition Name] and select [AGP1] which has the device that is the trigger condition (Trigger) for [Node Name].
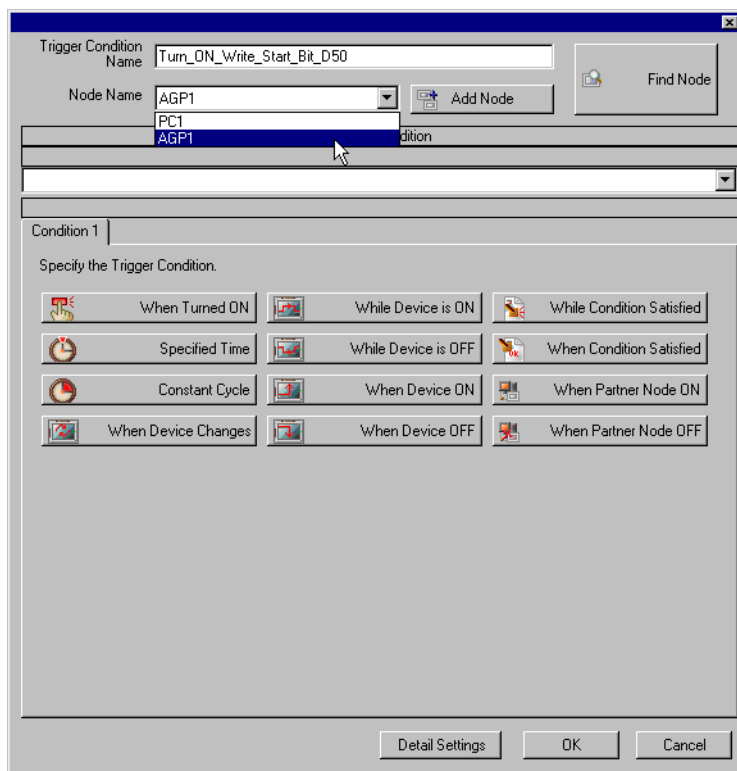
| NOTE | • Designate the entry node which has the device that is the trigger condition or the entry node which has data to be transferred for the node here. |

☞ Pro-Server EX reference manual-[Chapter31 Trigger Conditions]

4 Click the [When Device ON] button of the [Condition 1] tab and select [PLC1] for Device Name.
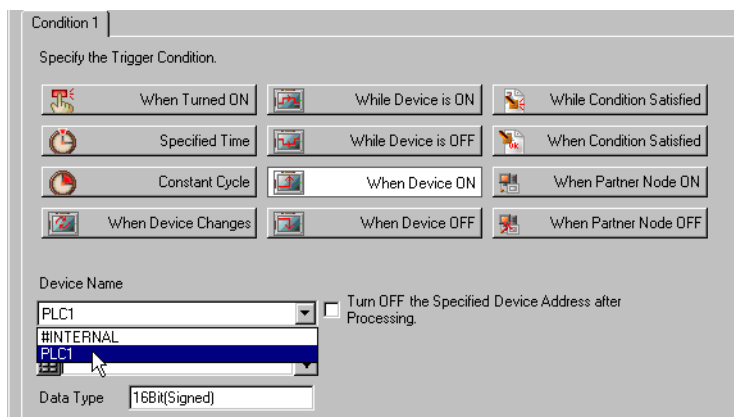
5 Click the list button of [Device] and select [Start_Write_D50] which is the symbol name of the device that is the trigger.

After selecting it, [Data Type] is automatically displayed, too.

NOTE • The trigger condition can be set with combination of 2 kinds of different conditions ([and Condition], [or Condition]).

☞ Pro-Server EX reference manual-[Chapter31 Trigger Conditions]

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6 Click the [OK] button.

7 Click the [New Trigger Condition] button in order to add Trigger Condition 2.

8 Set the following items in the same steps as Trigger Condition 1 and click the [OK] button.

- Trigger Condition Name ： Turn_ON_Write_Start_Bit_D100

- Node Name ： AGP1

- Trigger Condition ： When Device ON

- Device Name ： PLC1

- Device ： Start_Write_D100

9 After clicking the [New Trigger Condition] button in order to add Trigger Condition 3, set the following items in the same steps as Trigger Condition 1 and click the [OK] button.

- • Trigger Condition Name : Turn_ON_Write_Start_Bit_D150
- • Node Name : AGP1
- • Trigger Condition : When Device ON
- • Device Name : PLC1
- • Device : Start_Write_D150

The settings of Trigger Condition are now completed.

■ Setting data of the Action (Trigger Condition 1)

Set the data (Constant Value) to be transferred when the Action performs.

NOTE • Set only the constant value, [1] of Trigger Condition 1 in this screen. Add the constant values of Trigger Condition 2 and 3 after setting the Action.

Setting Ex.
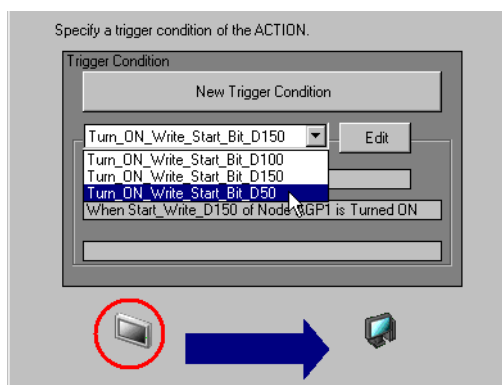
• The constant value to be transferred： 1

1 On the [Set ACTION Trigger Condition] dialog box, click the list button of [Trigger Condition], select [Turn_ON_Write_Start_Bit_D50], and click the [Next] button.
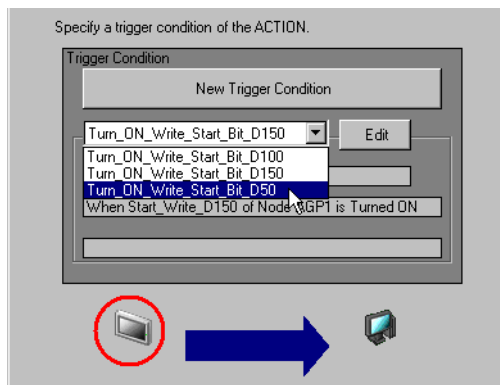
2 After clicking [Constant Value], enter the constant value to be transferred, [1] in the text box.
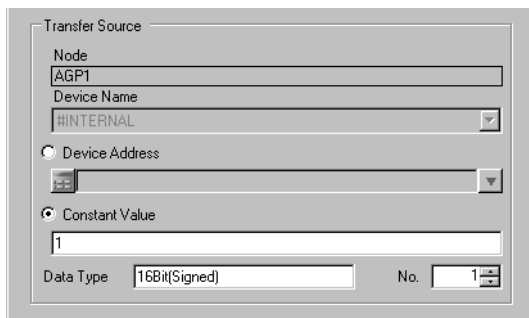
3 Set [1] for [No.] of Constant Value.

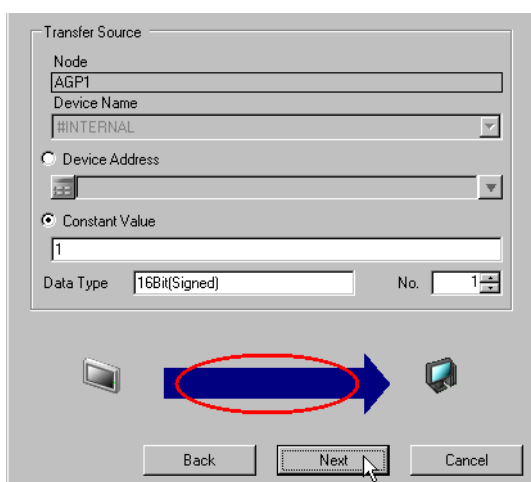The settings of Trigger Condition 1 are now completed.

■ Setting ACTION Node/Process Completion Notification

Set the node name where the Action performs and Yes/No of the notice that the Action has performed.
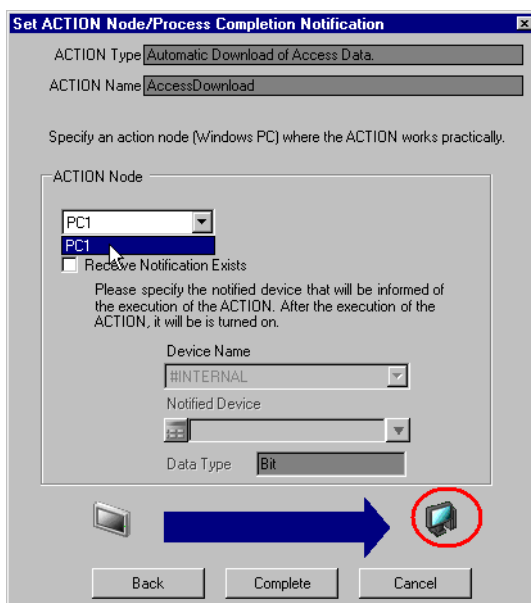
Setting Ex.

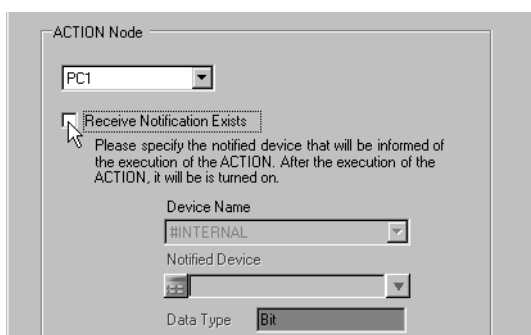- ACTION Node   : PC1
- Receive Notification: Not checked

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

2 Click the list button of [ACTION Node] and select [PC1] for the name of the node where the Action performs.

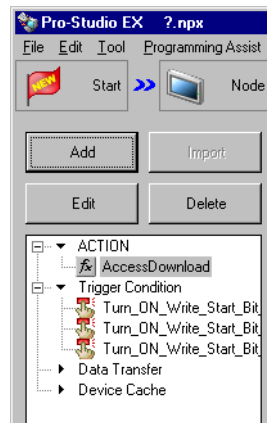3 If [Receive Notification Exists] is checked, uncheck it.

NOTE • If [Receive Notification] is set, after the Action is completed, the designated bit device turns ON. If more than one Action is performed sequentially, that designated bit device can be used for the trigger condition (Trigger) of the next Action.

☞ Pro-Server EX reference manual-[Chapter31 Trigger Conditions]」

4   Click the [Complete] button.

The [Set ACTION Node/Process Completion Notification] screen closes and the setup Action name and trigger condition names are displayed on the left of the screen.

The settings of 'ACTION Node/Process Completion Nofitication' are now completed.
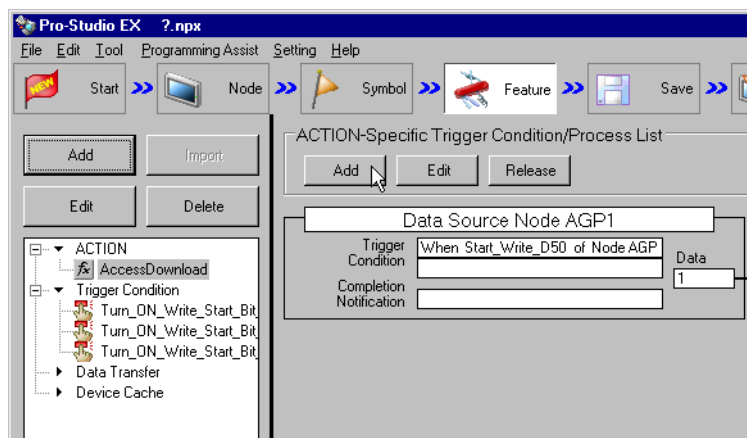
■   Setting data of the Action (Trigger Condition 2, 3)

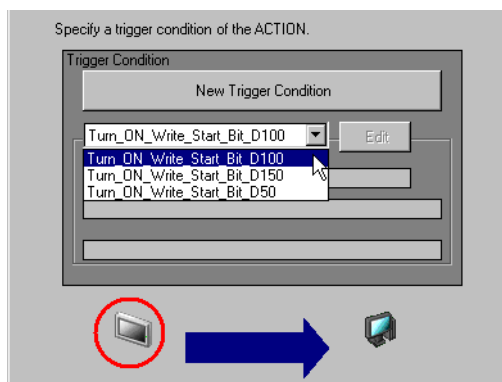Set the constant values of Trigger Condition 2 and 3.

<div>Setting Ex.</div>

- •   Transfer Source Device Name   : PLC1
- •   The constant value to be transferred for Trigger Condition 2 : 2
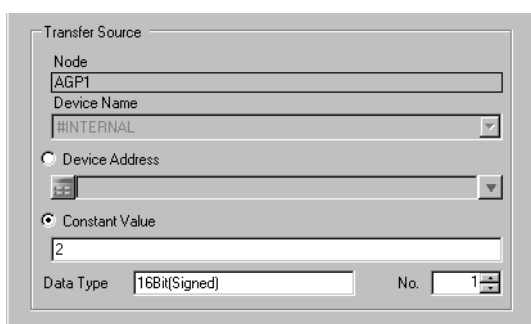- •   The constant value to be transferred for Trigger Condition 3 : 3

1   Click the [ACTION-Specific Trigger Condition/Process List, Add] button.
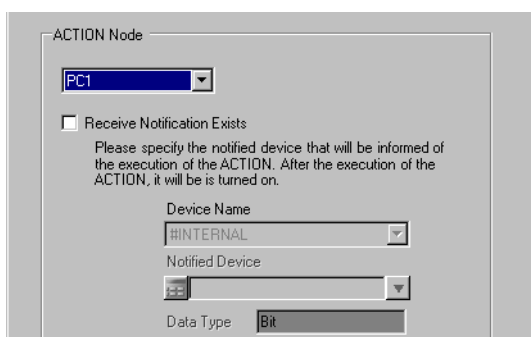
2 Click the list button of [Trigger Condition] and select [Turn_ON_Write_Start_Bit_D100]. Then click the [Next] button.
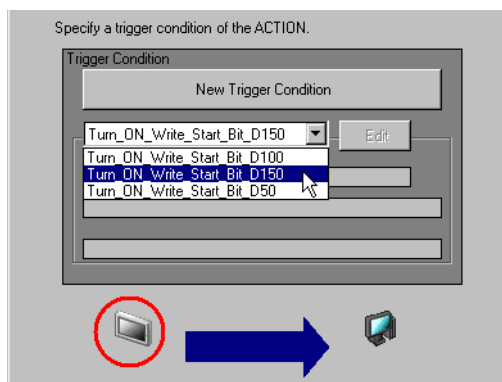
Specify a trigger condition of the ACTION.

Trigger Condition

New Trigger Condition

Turn_ON_Write_Start_Bit_D100   Edit
Turn_ON_Write_Start_Bit_D100
Turn_ON_Write_Start_Bit_D150
Turn_ON_Write_Start_Bit_D50

3 Click [Constant Value] and enter the constant value, [2].

Transfer Source

Node
AGP1
Device Name
#INTERNAL

○ Device Address

● Constant Value
2

Data Type   16Bit(Signed)   No.   1

4 Click the [Next] button.

5 After selecting [PC1] for [ACTION Node], click the [Complete] button.

ACTION Node

PC1

☐ Receive Notification Exists

Please specify the notified device that will be informed of the execution of the ACTION. After the execution of the ACTION, it will be is turned on.

Device Name
#INTERNAL

Notified Device

Data Type   Bit

6 After clicking the [ACTION-Specific Trigger Condition/Process List, Add] button and selecting [Turn_ON_Write_Start_Bit_D150], set the constant value, [3] in the same way.
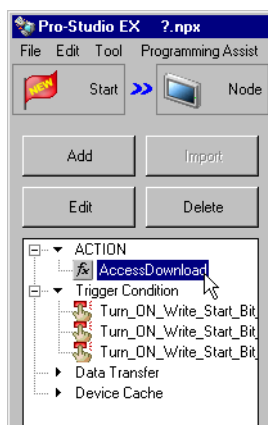
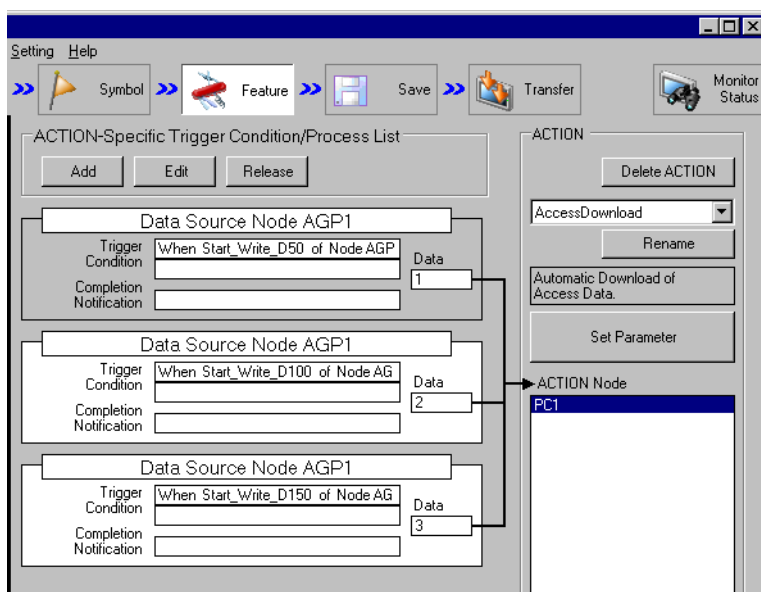The settings of Trigger Condition 2 and 3 are now completed.

■ Confirming the setup contents

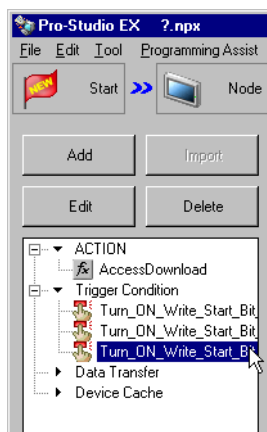Confirm the setup contents in the setup contents list screen.

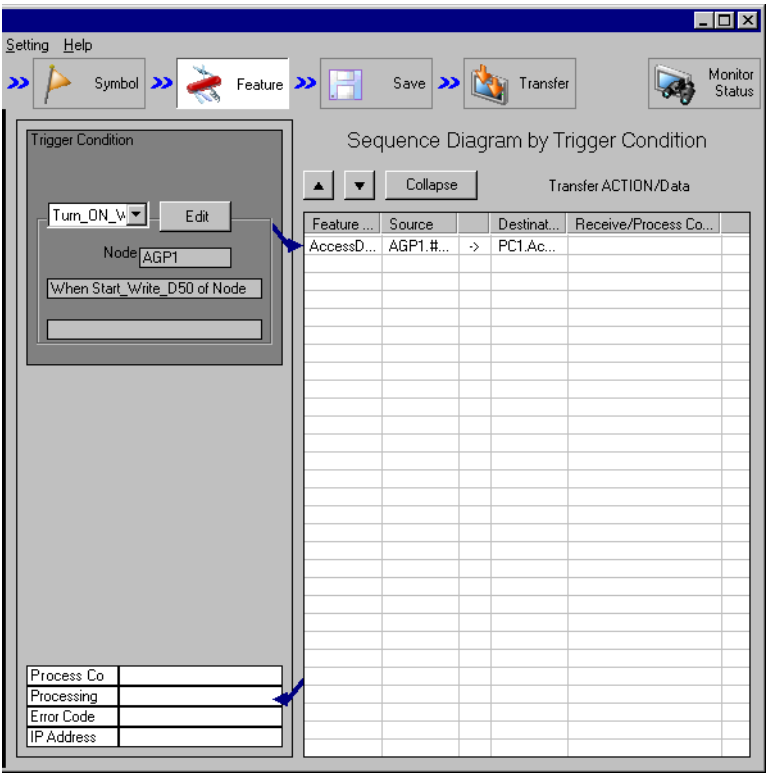1 From the tree display on the left of the screen, click the Action name, [Access Download].

Confirm the setup contents are displayed on the right of the screen.

2 Click each trigger condition name from the tree display on the left of the screen.

Confirm that the setup contents are displayed on the right of the screen.

That's all for confirming the setup contents.

■ Saving the network project file

Save the setup contents as a network project file.

For saving the network project file, see Pro-Server EX reference manual- [Chapter24 Saving].

| NOTE | • Pro-Server EX reads the network project file and executes the Action according to the setup contents in it. Therefore, be sure to save the setup contents as a network project file. |

Setting Ex.

- Save Destination of the network project file   : Desktop\Access_download.npx
- Title   : Access Upload Action

■ Transferring the network project file

Transfer the saved network project file to the entry node.

For transferring the network project file, see Pro-Server EX reference manual-[Chapter25 Transferring].

| NOTE | • Be sure to transfer the network project file. If you do not transfer it, the Action will not perform. |

Setting Ex.

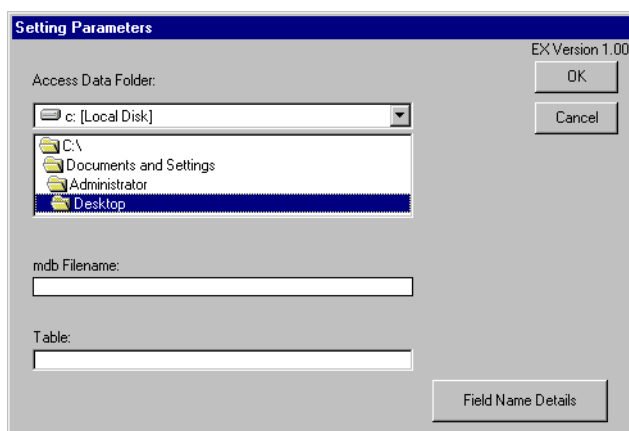• Transfer Destination： AGP1

■ Performing the Action

Confirm that the data corresponding to the trigger condition is written to the device of the connection device when any trigger condition is enabled.

| NOTE | • Confirm the actually written values with for example, Monitor Function of ladder creation software. |

That's all for the explanation of this Action.

1.5.2　　　Setup Guidance

In this section, the detailed setup method of 'Action's Parameter' will be explained.

Setting Items	Setting Details
Access Data Folder	Designate the Access file folder for reference. At default, the folders in C Drive (C:) are displayed. To change the displayed drive, click the list button and select the desired drive.
mdb Filename	Designate the Access file name for reference.
Table	Designate the Access file table name for reference. If you designate 'mdb file', the table in the mdb file will be automatically displayed.
Field Name Details	The [Setting Parameters] for the field of [Recipe DB Master Table]/ [Recipe Information Table] dialog box will be displayed. For details, see [■ Field Name Details Setup Screen].

■ Filed Name Details Setup Screen

Setting Items		Setting Details
Recipe DB Master Table	Keycode	Set a field name for [Keycode].
	Access file name	Set a field name for [Access file name].
	Recipe Information Table	Set a field name for [Recipe Information Table].
Recipe Information Table	Node name	Set a field name for [Node name].
	Symbol name	Set a field name for [Symbol name].
	Data type	Set a field name for [Data Type].
	Data	Set a field name for [Data].
	Number	Set a field name for [Number].