# 19 Sending Data between Devices

19.1	Try to Send Data between Devices	
	Setting Guide	
19.3	Restrictions	19-44

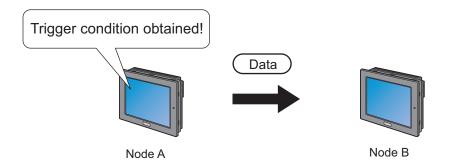
## 19.1 Try to Send Data between Devices

There are two types of methods for exchanging data between devices: the distribution type and the collection type.

• Distribute Type

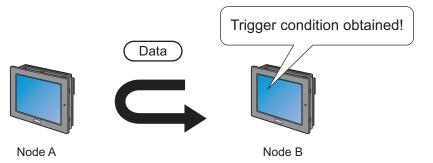
Transfers data from the node where the trigger condition has been satisfied to the other node.

"19.1.1 Distributing Data"



Collection Type

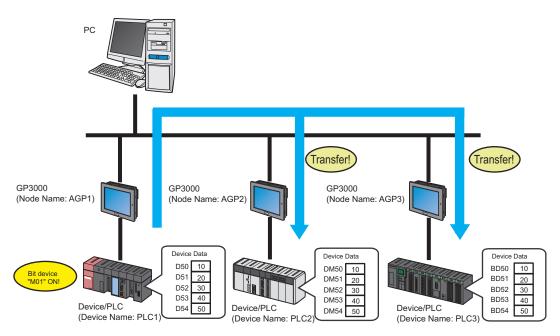
Collects data from the other node to the node where the trigger condition has been satisfied.



### 19.1.1 Distributing Data

### [Action Example 1]

Detect the rising of the device of the Device/PLC (PLC1) (bit device: address "M01") and transfer the data of the device of the Device/PLC (PLC1) (word device: addresses "M50" to "M54") to the other two Device/PLCs (PLC2 and PLC3) (word device: addresses "DM50" to "DM54", and addresses "BD50" to "BD54").



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

- After the transfer of the network project is completed, it is not necessary to use the PC in providing data.
  - Refer to [Action Example 2] for the action example of "Collection Type".

"19.1.2 Collecting Data"

- When [NPX ID] is selected under [Compare NPX Project on Connection] on the [Option Settings] screen, you need to transfer the network project to all nodes, including those which are not affected by the changes. When [NPX changes] is selected, you can transfer the network project only to nodes that are affected by the changes, unless the changes of the network project affect target items for comparison. This makes the transfer procedure easier in large-scale systems. Refer to the following section for more details on [Compare NPX Project on Connection].
- When you change selection of [Compare NPX Project on Connection] on the [Option Settings] screen, execute the transfer to all nodes.
- If tags are set up on transfer destination or transfer source nodes, you can transfer data to GP4000/ LT4000 Series and WinGP nodes.

### [Setting Procedure]

1	Starting 'Pro-Studio EX' (page19-5)	This step starts 'Pro-Studio EX'.
2	Registering Entry Nodes (page19-5)	This step registers the PC and the display units as entry nodes.
	+	
3	Registering Symbols (page19-6)	This step registers as a symbol the device of Device/ PLC which serves as a trigger condition (trigger), a data transfer source, and a data transfer destination.
4	Setting Data Transfer Type (page19-8)	This step sets a type of data transfer (Distribution Type).
	+	
5	Setting Trigger Conditions (page19-9)s	This step sets conditions for transferring data.
	+	
6	Setting Transfer Data (Transfer source/ Transfer destination) (page19-12)	This step executes data settings of transfer source and transfer destination.
	+	
7	Verifying Setting Result (page19-16)	This step verifies setting results on the setting content list screen.
	+	
8	Saving a Network Project File (page19-17)	This step saves the current settings as a network project file.
	+	
9	Transferring a Network Project File (page19- 17)	This step transfers a saved network project file to the display unit.
10	Executing Data Transfer (page19-17)	This step verifies that the data of the transfer source is transferred to the preset transfer destination device after the preset trigger condition has become effective.

### Starting 'Pro-Studio EX'

This step starts 'Pro-Studio EX'.

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

### Registering Entry Nodes

This step registers the display units connected with a network as nodes. Refer to "31 Node Registration" for details about entry nodes.



Node Name :AGP1 IP Address :192.168.0.100 Device/PLC Information



Node Name:AGP2IP Address:192.168.0.101Device/PLC Information



Node Name :AGP3 IP Address :192.168.0.102 Device/PLC Information

### / Ex. /

Transfer Source

- Entry Node : GP3000 series
- Node Name : AGP1
- IP Address : 192.168.0.100

### Transfer Destination 1

- Entry Node : GP3000 series
- Node Name : AGP2
- IP Address : 192.168.0.101

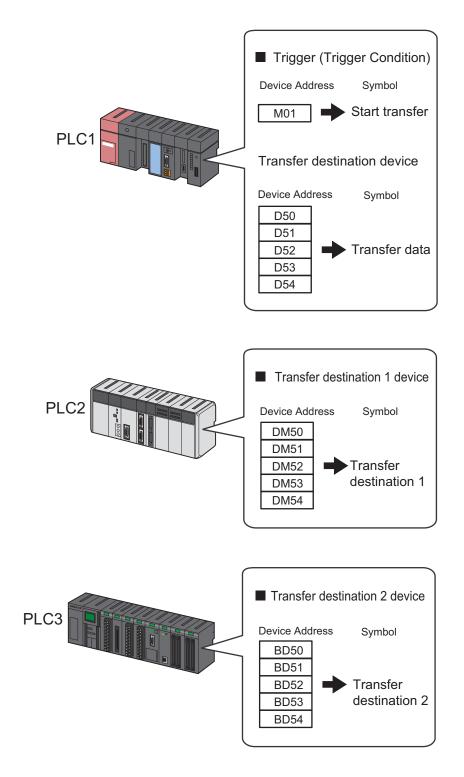
#### **Transfer Destination 2**

- Entry Node : GP3000 series
- Node Name : AGP3
- IP Address : 192.168.0.102

### Registering Symbols

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

Refer to "32 Symbol Registration" for details about symbols.





• Trigger (trigger condition)

Setting item	Setting content		
Symbol Name	Start transfer		
Data Type	Bit		
Device address for symbol registration	"M01" of Device/PLC (PLC1)		
No. of Devices	1		

• Transfer Source Device

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

• Transfer Destination Device

Setting item	Setting content		
Symbol Name	Transfer Destination 1	Transfer Destination 2	
Data Type	16Bit (Signed)		
Device address for symbol registration	"DM50" to "DM54" of Device/PLC (PLC2)	"BD50" to "BD54" of Device/PLC (PLC3)	
No. of Devices	5	5	

### Setting Data Transfer Type

This step sets a type of data transfer (Distribute Type).



Setting item	Setting content	
Data Transfer Name	Data transfer	
Transfer Type	Distribute type	

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

物 Pro-Studio EX 👘	?.прх		
File Edit Tool Pr	ogramming Assist – Setti	ing Help	
Start 🔉	Node >>	Symbol Symbol	e.
Symbol		Node Name AGP1 Device N	lami
Group	Ungroup	Sheet Name Sheet2	alot
Insert	Delete		<b>_</b>
Сору	Cut Paste	Symbol Data Type Consec	De

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

饕 Pro-9	itudio E	Χt	est.npx				
File Edi	t Tool	Pro	grammin	ig Assist	Sett	ing He	elp
	Start	<b>&gt;&gt;</b>		Node	>>	$\triangleright$	Symbol
	dd ACTION Trigger I Data Tr Device	Condi anste	D			T	Data Tra The data tre he units cc

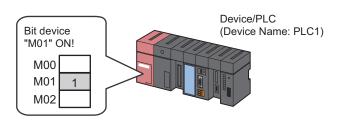
3 Enter "Data Transfer" in [Data Transfer Name] as a data transfer name to set, and then check [Distribute Type].

Select Data Transfer Type	X
Which type of data transfer do you want to do?	Data Transfer Data Transfer
	C Collection Type
About Data Transfer Type The data transfer types are classified according	) to their contents as follows.

This is the end of data transfer type settings.

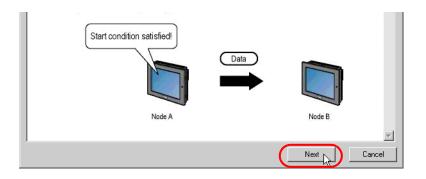
### Setting Trigger Conditions

This step sets conditions (trigger bit ON) for transferring data. Refer to "33 Trigger Conditions" for details about trigger conditions.



### **Ex.**

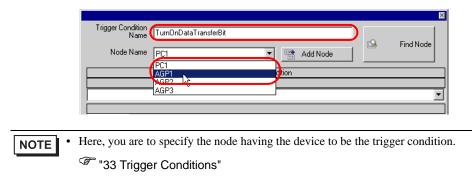
- Trigger Condition Name: Turn on data transfer bit
- Trigger Condition: When "Transfer start" (M01) is ON
- 1 On the "Select Data Transfer Type" screen, click the [Next] button.



2 Click the [New Trigger Condition] button.

Data Transfer (Distribute Type)		×
Trigger Condition	Data Transfer Name	DataTransfer
New Trigger Condition		Add Transfer Source
Node		Edit/Add Transfer Destination
Delete		Set Receive Notification

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



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

Condition 1					
Specify the Trigger Condition.					
👫 When Turned ON	While Device is ON While Condition Satisfied				
G Specified Time	While Device is OFF When Condition Satisfied				
Constant Cycle	When Device ON 👫 When Partner Node ON				
When Device Changes	When Device OFF 🕺 When Partner Node OFF				
Device Name  INTERNAL  Turn OFF the Specified Device Address after Processing.  Data Type 16Bit(Signed)					
Limited Time Offer	Check Cycle Always				
	Detail SettingsOKCancel				

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

	Device Name PLC1  Processing.  Device Address  Device Address  Limited Time Offer  TransferD atd  hou	;el	
NOIL	You can also set trigger conditions by combining 2 different types of or "Or" condition).	f conditio	ons ("And" condition

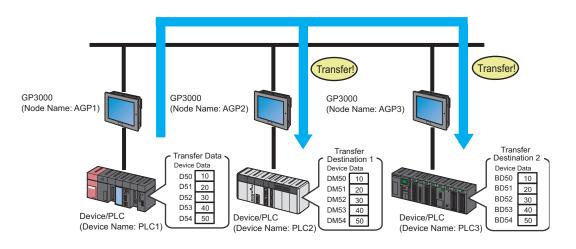
"33 Trigger Conditions"

6 Click the [OK] button.

This is the end of trigger condition settings.

### Setting Transfer Data (Transfer source/Transfer destination)

This step sets data of transfer source and transfer destination.



When tags are set up in the transfer source node, for the transfer destination you can specify Pro-Server EX, SP-5B40/WinGP, SP-5B10 or GP4000/LT4000 Series nodes.
 When tags are set up in the transfer destination node, for the transfer source node you can specify Pro-Server EX, SP-5B40/WinGP, SP-5B10 or GP4000/LT4000 Series nodes.

### Ex.

- Transfer Source
- Device Name : PLC1
- Device : Transfer Data
- Transfer Destination 1
- Node Name : AGP2
- Device Name : PLC2
- Device : Transfer Destination 1
- Transfer Destination 2
- Node Name : AGP3
- Device Name : PLC3
- Device : Transfer Destination 2

1 On the "Data Transfer (Distribute Type)" screen, click the [Add Transfer Source] button.

Data Transfer (Distribute Type)	×
Trigger Condition New Trigger Condition TurnOnDataTransferBit Edit Node AGP1 When StartTransfer of Node AGP1 is Turned	Data Transfer Name DataTransfer Add Transfer Source Edit/Add Transfer Destination
Delete	Set Receive Notification

2 In [Transfer Source], click the list button of [Device Name] and select "PLC1" as a Device/PLC to be a data transfer source.

Add Transfer Data	×
Transfer Source	Transfer Destination
Node	Node
AGP1	PC1
Device Name	Device Name
#INTERNAL 💌	#INTERNAL
#INTERNAL	Device Address
	<b>T</b>
C Constant Value	Data Type 16Bit(Signed)
Data Type 16Bit(Signed) No. 1	OK Cancel

**3** Click [Device Address] and then click the list button. Select "Transfer Data" as a symbol name of a device to be a transfer source.

Add Transfer Data	×
Transfer Source	Transfer Destination
Node	Node
AGP1	PC1
Device Name	Device Name
PLC1	#INTERNAL 🗨
Device Address	Device Address
	⊡- Local:Sheet2
C Constant Value	TransferData
Data Type 16Bit(Signed) No. 1	

This is the end of the data settings of a transfer source. Proceed to the data settings of transfer destination 1. 4 In [Transfer Destination], click the list button of [Node] and then select "AGP2" as an entry node to be a data transfer destination.

Add Transfer Data	×
Transfer Source	Transfer Destination
Node	Node
AGP1	PC1
Device Name	AGP1
PLC1	AGP2
Device Address	AGP3 NS
TransferData	
C Constant Value	Data Type 16Bit(Signed)
Data Type 16Bit(Signed) No. 1	
	OK Cancel

**5** Click the list button of [Device Name] and select "PLC2" as a Device/PLC to be a data transfer destination.

Add Transfer Data	×
Transfer Source Node AGP1 Device Name PLC1  C Device Address TransferData C Constant Value	Transfer Destination Node AGP2 Device Name PLC2 HINTERNAL PLC2 Data Type [16Bit(Signed]
Data Type 16Bit(Signed) No. 1	OK Cancel

6 Click the list button of [Device Address] and select "Transfer Destination 1" as a symbol name of a device to be a transfer destination

Add Transfer Data	×
Transfer Source Node AGP1 Device Name PLC1 ♥ Device Address TransferData ♥ Constant Value Data Type 15Bit(Signed) No. 1	Transfer Destination Node AGP2 Device Name PLC2 Device Address Device Address Data Type 16Bit Cocal Sheet5

7 Click the [OK] button.

This is the end of the data settings of transfer destination 1. Proceed to the data settings of transfer destination 2.

8 Click the [Edit/Add Transfer Destination] button.

Data Transfer (Distribute Type)	×
Trigger Condition         New Trigger Condition         TurnOnDataTransferBit         Edit         Node[AGP1         When StartTransfer of Node AGP1 is Turned	Data Transfer Name DataTransfer Add Transfer Source Edit/Add Transfer Destination
Delete	Set Receive Notification

**9** On the "Edit Transfer Data" screen, enter the following contents of transfer destination 2 in the fields to set a new transfer destination, and then click the [OK] button.

Entry node of transfer destination: AGP3

Device name of transfer destination: PLC3

Device of transfer destination: Transfer Destination 2

Edit Transfer Data			×
		ОК	Cancel
Transfer Source	Γ	Transfer Destination	
Node		Node	<b>^</b>
AGP1 Device Name		AGP2	•
PLC1		Device Name	
Device Address		PLC2 Device Address	<u> </u>
🖬 TransferData 🔍 🔻	_		
C Constant Value	•	TransferDestination1	▼ 16Bit(Signed)
		<b>33</b>	▼ 16Bit(Signed)
Data Type 16Bit(Signed) No. 1 🚔			
		Node	
		AGP3	
		Device Name PLC3	
		Device Address	
			- ICD2(Circuit)
	•	TransferDestination2	▼ 16Bit(Signed)
		<u></u>	▼ 16Bit(Signed)
		Node	
		AGP1 Device Name	<b></b>
		#INTERNAL	<b></b>
		1	

10 Click the [OK] button.

This is the end of the transfer data settings.

### Verifying Setting Result

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

1 Select "Data Transfer" as a data transfer name from the tree display on the left of the screen.

🎕 Pro-Studio EX	Х ?.пря	
File Edit Tool	Programming Assist	2
Start .	>> 🟹 Node	
Add	Import	
Edit	Delete	
ACTION     Trigger Condition     TurnOnDataTransferBit     Data Transfer     Data Transfer     Device Cacht		

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

Setting Help	Feature 💙 📄 Sav	e ン 🔖 Tran	sfer Monitor Status
Edit Delete	Transfer Source	Data Type	Transfer Destination
DataTran TurnOnData	[AGP1.PLC1]TransferData [AGP1.PLC1]TransferData	16Bit(Signed) 16Bit(Signed)	[AGP3.PLC3]TransferDestin [AGP2.PLC2]TransferDestin

This is the end of the verification of the settings.

### Saving a Network Project File

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

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

 'Pro-Server EX' reads a created network project file, and then executes data transfer according to the settings in the file. The settings therefore need be saved in the network project file.

### **Ex.**

- Path of network project file
- Title

: Desktop\Datatrans\_delivery.npx

: Data Transfer

### Transferring a Network Project File

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

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

# NOTE Be sure to transfer a network project file. If not, the data transfer feature will not work. It is not necessary to reload the network project file during data transfer since the PC is not active then.

### Executing Data Transfer

This step verifies that the data of the transfer source is transferred to the preset transfer destination device after the preset trigger condition has become effective.

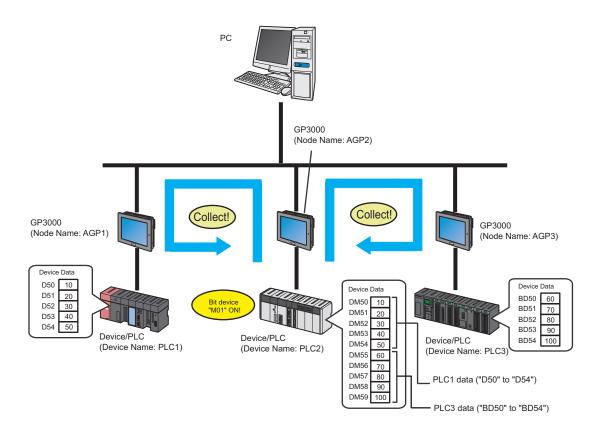
Symbol - Monitor of Pro-Server EX					_ 🗆 🗡
Node AGP1   Device/PLC PLC1  Set Polling time 1000ms Time expendence	Device Address S led for read 3047ms Time	neet3 expended for write	T Start		
; Symbol   Dates tops   TransferDestination   16Bit(Signed)	+ Address Count	+90 10	*01 * 20	02 +03   30 40	*04
ymbol - Monitor of Pro-Server EX Node [AGP1 ] Device/PLC [PLC1 Set Polling time [1000ms Time expend	Device Address St address	eet3 xpended for write	Start		
g  Symbol Data type TransferDestination2 #16Bit(Signed)	+ Address Count BD0059 5	+80 60		80) +03   80) 90)	+04 •
<b>TE</b> • Check the actually wri	tten values with si	ich function	as monito	r of rudder (	reation so

This is the end of the explanation of data transfer (distribution type).

### 19.1.2 Collecting Data

### [Action Example 2]

Detect the rising of the device of the Device/PLC (PLC2) (bit device: address "01"), collect the data of the device of the Device/PLCs (PLC1 and PLC 3) (word device: addresses "D50" to "D54" and addresses "BD50" to "BD54"), and then write the collected data in the device of the Device/PLC (PLC 2) (word device: addresses "DM50" to "DM59").



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

• When the transfer of the network project is completed, the PC is not necessary for operation.
• Refer to [Action Example 1] for the action example of "Distribution Type".

"19.1.1 Distributing Data"

### [Setting Procedure]

	$\mathbf{G}_{i}$ $\mathbf{G}_{i}$ $\mathbf{D}_{i}$ $\mathbf{G}_{i}$ $\mathbf{I}_{i}^{*}$ $\mathbf{D}\mathbf{X}_{i}^{*}$ $($ 10.20 $)$	
1	Starting 'Pro-Studio EX' (page19-20)	This step starts 'Pro-Studio EX'.
2	Registering Entry Nodes (page19-20)	This step registers the PC and the display units as entry nodes.
3	Registering Symbols (page19-21)	This step registers as a symbol the device of Device/ PLC which serves as a trigger condition (trigger), a data transfer source, and a data transfer destination.
4	Setting Data Transfer Type (page19-23)	This step sets a type of data transfer (Collection Type).
	+	
5	Setting Trigger Conditions (page19-24)	This step sets conditions for transferring data.
	+	
6	Setting Transfer Data (Transfer source/ Transfer destination) (page19-27)	This step executes data settings of transfer source and transfer destination.
	+	
7	Verifying Setting Result (page19-32)	This step verifies setting results on the setting content list screen.
	+	
8	Saving a Network Project File (page19-33)	This step saves the current settings as a network project file.
	+	
9	Transferring a Network Project File (page19- 33)	This step transfers a saved network project file to the display unit.
10	Executing Data Transfer (page19-33)	This step verifies that the data of the transfer source is transferred to the preset transfer destination device after the preset trigger condition has become effective.

### Starting 'Pro-Studio EX'

This step starts 'Pro-Studio EX'.

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

### Registering Entry Nodes

This step registers the display units connected with a network as nodes. Refer to "31 Node Registration" for details about entry nodes.



Node Name :AGP1 IP Address :192.168.0.100 Device/PLC Information



Node Name:AGP2IP Address:192.168.0.101Device/PLC Information



Node Name:AGP3IP Address:192.168.0.102Device/PLC Information

### Transfer Source 1

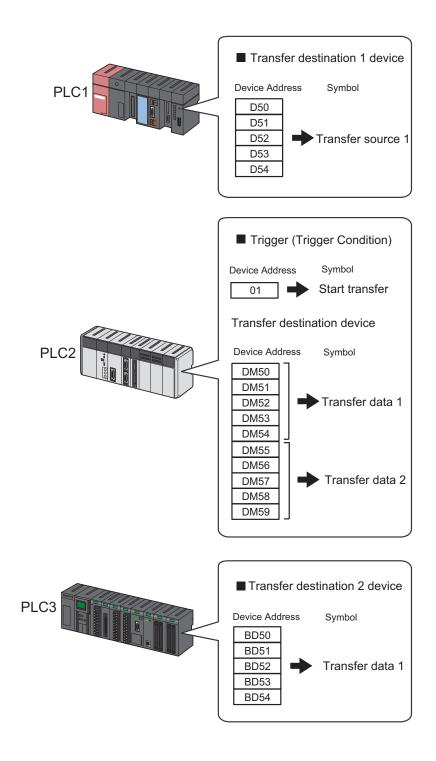
Ex.

- Entry Node : GP3000 series
- Node Name : AGP1
- IP Address : 192.168.0.100
- **Transfer Destination**
- Entry Node : GP3000 series
- Node Name : AGP2
- IP Address : 192.168.0.101
- Transfer Source 2
- Entry Node : GP3000 series
- Node Name : AGP3
- IP Address : 192.168.0.102

### Registering Symbols

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

Refer to "32 Symbol Registration" for details about symbols.





• Trigger (trigger condition)

Setting item	Setting content
Symbol Name	Start transfer
Data Type	Bit
Device address for symbol registration	"01" of Device/PLC (PLC2)
No. of Devices	1

• Transfer Source Device

Setting item	Setting content	
Symbol Name	Transfer Source 1	Transfer Source 2
Data Type	16Bit (Signed)	
Device address for symbol registration	"DM50" to "DM54" of Device/PLC (PLC1)	"BD50" to "BD54" of Device/PLC (PLC3)
No. of Devices	5	5

Transfer Destination Device

Setting item	Setting content	
Symbol Name	Transfer Data 1	Transfer Data 2
Data Type	16Bit (Signed)	
Device address for symbol registration	"DM50" to "DM54" of Device/PLC (PLC2)	"DM55" to "DM59" of Device/PLC (PLC2)
No. of Devices	5	5

### Setting Data Transfer Type

This step sets a type of data transfer (Collection Type).

Ex.	
Setting item	Setting content
Data Transfer Name	Data transfer
Transfer Type	Collection type

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

饕 Pro-Studio EX 🛛 ?	.npx	
File Edit Tool Pro	gramming Assist – Set	etting Help
Start >	Node >	Symbol Symbol Feature Save .
Symbol		Node Name AGP2 Device Name
Group	Ungroup	Sheet Name Sheet5 🛛 🗖 Set it as a glob
Insert	Delete	

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

💱 Pro-Studio EX 🛛 test.npx	
File Edit Tool Programming Assist	Setting Help
Start 🍑 🟹 Node	🔉 눧 Symbol
Add Import	Data Tra
ACTION Trigger Condition Data Transfer Device Cache	The data tre the units cc

3 Enter "Data Transfer" in [Data Transfer Name] as a data transfer name to set, and then check [Collection Type].

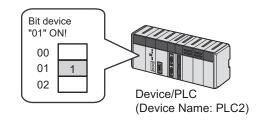
Select Data Transfer Type	×
Which type of data transfer do you want to do?	Data Transfer Data Transfer Name
O Distribute Type	
	<b>B</b>
About Data Transfer Type The data transfer types are classified according	to their contents as follows.

This is the end of data transfer type settings.

### Setting Trigger Conditions

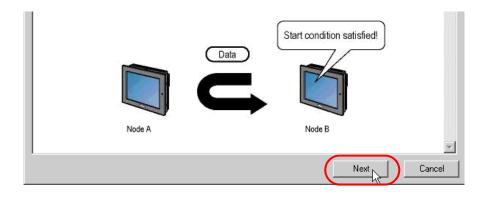
This step sets conditions (trigger bit ON) for transferring data.

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





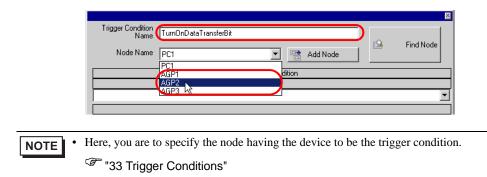
- Trigger Condition Name: Turn on data transfer bit
- Trigger Condition: When "Transfer start" (01) is ON
- 1 On the "Select Data Transfer Type" screen, click the [Next] button.



2 Click the [New Trigger Condition] button.

Data Transfer (Collection Type)	×
Data Transfer Name DataTransfer	Trigger Condition
Add Transfer Source	
Edit Transfer Source	Node
Delete	Set Receive Notification

**3** Enter the trigger condition name "TurnOnDataTransferBit" in [Trigger Condition Name], and select "AGP2" in [Node Name] which has the device to serve as the trigger condition (trigger).



4 Click the [When Device ON] button in the [Condition 1] tab and select "PLC2" for the device name.

Condition 1				
Specify the Trigger Condition	n.			
🏋 🛛 When Tur	ned ON	While Device is ON		While Condition Satisfied
🕒 Specifie	ed Time	While Device is OFF		When Condition Satisfied
Constar	nt Cycle	When Device ON		When Partner Node ON
When Device C	hanges 🗾	When Device OFF	*	When Partner Node OFF
Device Name #INTERNAL PLCI Data Type 16Bit(Signer		Turn OFF the Specified Processing.	l Device	: Address after
Limited Time Offer	nin - 🔲 🕂 hour	0 🕂 min	Ch	eck Cycle 🗖 Always
		Detail Settings		OK Cancel

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

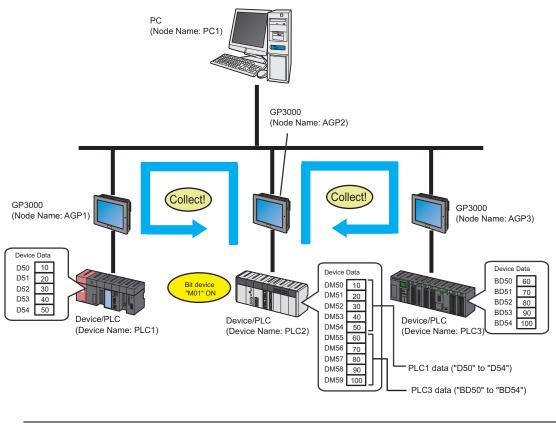
	Device Name	
	PLC2   Function of the Specified Device Address after  Plc2	
	Device Address	
	Data Type Bit	
	- TransferData2	
	Limited Time Offer	
	0 🚗 hour 0 🛖 min · 0 🌲 hou	
	pel	
1		-
NOTE	You can also set trigger conditions by combining 2 different types of conditi	ons ("And" condition
	or "Or" condition).	
(		
	"33 Trigger Conditions"	

6 Click the [OK] button.

This is the end of trigger condition settings.

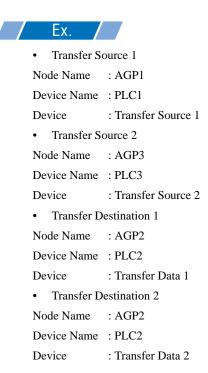
### ■ Setting Transfer Data (Transfer source/Transfer destination)

This step sets data of transfer source and transfer destination.



• When tags are set up in the transfer source node, for the transfer destination you can specify Pro-Server EX, SP-5B40/WinGP, SP-5B10 or GP4000/LT4000 Series nodes. When tags are set up in the transfer destination node, for the transfer source node you can specify

Pro-Server EX, SP-5B40/WinGP, SP-5B10 or GP4000/LT4000 Series nodes.



1 On the "Data Transfer (Collection Type)" screen, click the [Add Transfer Source] button.

Data Transfer (Collection Type)	×
Data Transfer Name DataTransfer Add Transfer Source	Trigger Condition         New Trigger Condition         TurnOnDataTransferBit         Edit         Node         AGP2         When StartTransfer of Node AGP2 is Turned
Delete	Set Receive Notification

2 In [Transfer Source], click the list button of [Node] and then select "AGP1" as an entry node to be a data transfer source.

Node	Node	
PC1	▼ AGP2	
PC1	Device Name	
AGP1	#INTERNAL	•
AGP3	Device Address	
	▼	•
	Data Type 16Bi	t(Signed)

**3** Click the list button of [Device Name] and select "PLC1" as a Device/PLC to be a data transfer source.

Add Transfer Data	×
Transfer Source	Transfer Destination
Node	Node
AGP1	AGP2
Device Name	Device Name
#INTERNAL	#INTERNAL
#INTERNAL	Device Address
	I
Data Type 16Bit(Signed) No. 1	Data Type 16Bit(Signed)
	OK Cancel

4 Click [Device Address] and then click the list button. Select "Transfer Source 1" as a symbol name of a device to be a transfer source.

Add Transfer Data	×
Transfer Source	Transfer Destination
Node	Node
AGP1	AGP2
Device Name	Device Name
PLC1	#INTERNAL
Device Address	Device Address
Data Type 16Bit(Signed) No. 1	- Local Sheet3 TransferSource1
	K

This is the end of the data settings of transfer source 1.

Proceed to the data settings of transfer destination 1.

5 Click the list button of [Device Name] and select "PLC2" as a Device/PLC to be a data transfer destination.

Add Transfer Data	×
Transfer Source	Transfer Destination
Node	Node
AGP1	AGP2
Device Name	Device Name
PLC1	#INTERNAL
Device Address	#INTERNAL
TransferSource1	
Data Type 16Bit(Signed) No.	Data Type 16Bit(Signed)
	OK Cancel

6 Click the list button of [Device Address] and select "Transfer Data 1" as a symbol name of a device to be a transfer destination.

Add Transfer Data	X
Transfer Source	Transfer Destination
Node	Node
AGP1	AGP2
Device Name	Device Name
PLC1	PLC2
Device Address	Device Address
TransferSource1	
Data Type 16Bit(Signed) No. 1	Data Type 16Bit(Signed) ⊡ Local:Sheet5
	OK

7 Click the [OK] button.

This is the end of the data settings of transfer destination 1.

Proceed to the data settings of transfer source 2 and transfer destination 2.

8 Click the [Add Transfer Source] button.

Data Transfer (Collection Type)	×
Data Transfer Name DataTransfer Add Transfer Source	Trigger Condition New Trigger Condition TurnOnDataTransferBit Edit Node AGP2 When StartTransfer of Node AGP2 is Turned
Delete	Set Receive Notification

- $\boldsymbol{9}\,$  Set the items below in the same way as transfer source 1 and click the [OK] button.
  - Entry node of transfer source: AGP3
  - Device name of transfer source: PLC3
  - Device of transfer source: Transfer Source 2
  - Entry node of transfer destination: AGP2
  - Device name of transfer destination: PLC2
  - Device of transfer destination: Transfer Data 2

Add Transfer Data			×
Transfer Source		Transfer Destination	
Node		Node	
AGP3	•	AGP2	
Device Name		Device Name	
PLC3	-	PLC2	•
Device Address		Device Address	
TransferSource2	<b>v</b>	🚍 TransferData2	<b>_</b>
Data Type 16Bit(Signed) No.	1.	Data Type 16Bit(Signed)	
		ок	Cancel

10 Click the [OK] button.

This is the end of the transfer data settings.

### Verifying Setting Result

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

1 Select "Data Transfer" as a data transfer name from the tree display on the left of the screen.



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

Setting Help	bol ⋗ ≷ Delete	Feature ⋗ 📄 Save	e	sfer Monitor Status
Feature Name	Trigger Con	Transfer Source	Data Type	Transfer Destination
🔄 DataTran	TurnOnData	[AGP3.PLC3]TransferSource2	16Bit(Signed)	[AGP2.PLC2]TransferData2
		[AGP1.PLC1]TransferSource1	16Bit(Signed)	[AGP2.PLC2]TransferData1

This is the end of the verification of the settings.

### Saving a Network Project File

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

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

 'Pro-Server EX' reads a created network project file, and then executes data transfer according to the settings in the file. The settings therefore need be saved in the network project file.

/ Ex. /

• Path of network project file

: Desktop\Datatrans\_collect.npx

• Title

: Data Transfer

### Transferring a Network Project File

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

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

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

• It is not necessary to reload the network project file during data transfer since the PC is not active then.

### Executing Data Transfer

This step verifies that the data of the transfer source is transferred to the preset transfer destination device after the preset trigger condition has become effective.

Node AGP2	▼ Polling time	Device/PLC		2 expended for rea		tress Sheet5 Time expended for write	<b>•</b>	Start Start		
: Symbol StartTran TransferD	ata16Bit	(Signed) (Signed)	+	Address 0001 DM0050	Count 1 5	+00	+01 20	+02	+Ø3 40	+04   50
<u>TransferD</u>	ata16Bit	(Signed)		DM0055	5	60	70	80	90	100

• If you want to achieve faster communication during ACTION, refer to "29 Tips for Faster Communication".

This is the end of the explanation of data transfer (collection type).

# 19.2 Setting Guide

This section explains how to set each setting screen in detail.

- 19.2.1 Distribute Type
  - "Data Transfer (Distribute Type)" Screen

Data Transfer (Distribute Type)	×
Trigger Condition	Data Transfer Name Copy1
New Trigger Condition	Add Transfer Source
Delete Node.DeviceNa Device/Constant Data Type Number	Set Receive Notification Node.DeviceNa Device Data Type
	Complete Cancel

Setting item	Setting content
Trigger Condition	Click the [New Trigger Condition] button and enter a new trigger condition (trigger) for transferring data. Alternatively, click the list button and specify an existing trigger condition.
Data Transfer Name	Displays the name of the data transfer that you set on the "Select Data Transfer Type" screen.
Add Transfer Source	Displays the "Add Data Transfer" screen. Refer to "■"Add Transfer Data" Screen (Distribution Type)" for more details.
Edit/Add Transfer Destination	Displays the "Edit Data Transfer" screen. Refer to "■"Edit Transfer Data" Screen (Distribution Type)" for more details.
Set Receive Notification	Displays the receive notification settings screen. Refer to "■ Receive Notification Settings Screen" for more details.
Setting Content Display Window	Displays information of transfer source on the left side, and information of transfer destination on the right side.
Delete	Deletes selected contents.

Pro-Server EX Reference Manual

"Add Transfer Data" Screen (Distribution Type)

Transfer Source	Transfer Destination
Node	Node
PC1	PC1 💌
Device Name	Device Name
#INTERNAL	#INTERNAL 💌
Device Address	Device Address
C Constant Value	Data Type 16Bit(Signed)
Data Type 16Bit(Signed) No. 1	

Node	Displays an entry node (recognized automatically as a transfer source) that includes a device to cause a trigger condition (trigger) that you set in the step of trigger condition settings.	
Device Name	Specify a Device/PLC to be a data transfer source.	
Device Address	Check this to transfer device values. • When specifying a device address: Enter directly from the Calculator icon. List button Device Address/Symbol Group • When specifying a symbol: Select the symbol by clicking the list button. Calculator icon Device Address/Symbol Group • You can set up the device address when using 8 bit, TIME, TIME_OF_DAY, or	

Setting item		Setting content
Transfer Source	Constant Value	<ul> <li>Check this to transfer a constant value. Type the constant value in the text box.</li> <li><b>NOTE</b> <ul> <li>(1) Specifying a numeral: Specify the numeral itself. Insert a space to specify two or more numerals. (Example) 10 11 12 13 14 15</li> <li>(2) Specifying a character string: Specify the string itself if typable from the keyboard (except for [ ). (Example) When specifying ABC: ABC</li> </ul> </li> <li>Specify an untypable string such as a control code by representing its character code in hexadecimal notation, and enclosing it in square brackets [ ]. (Example) When specifying ABC followed by Carriage return and Line field: ABC[0C][0A]</li> <li>Specify [ by enclosing it in square brackets [[ ]. (Example) To specify the string "[ABC]", type [[]ABC[]]</li> </ul>
	Data Type	<ul> <li>Displayed automatically according to the device (symbol) entered in the Device Address.</li> <li><b>NOTE</b></li> <li>When the symbol has been imported from 'GP-Pro EX', it is necessary to specify the data type.</li> </ul>
	No.	Displayed automatically according to the device (symbol) entered in the Device Address. NOTE • When the symbol has been imported from 'GP-Pro EX', or when created in 'Pro- Server V4.X', it is necessary to specify the number.
Transfer Destina- tion	Node	Selects an entry node to be a data transfer destination.
	Device Name	Selects a Device/PLC to be a data transfer destination.
	Device Address	When specifying a device address: Enter directly from the Calculator icon. Calculator icon Device Address/Symbol Group      When specifying a symbol: Select the symbol by clicking the list button. List button Device Address/Symbol
	Data Type	Displayed automatically according to the device (symbol) entered in the Device Address. NOTE • When the symbol has been imported from 'GP-Pro EX', it is necessary to specify the data type.

"Edit Transfer Data" Screen (Distribution Type)

t Transfer Data	
	OK Cancel
Transfer Source	Transfer Destination
Node	Node
AGP1	AGP1
Device Name #INTERNAL	Device Name
·	PLC1
Device Address	Device Address
	↓ I6Bit(Signed)
C Constant Value	
	16Bit(Signed)
Data Type 16Bit(UnSigner No. 1 🛨	
	AGP2
	Device Name
	PLC2
	Device Address
	■ 16Bit(Signed)

Setting item		Setting content
Transfer Source	Node	Displays an entry node (recognized automatically as a transfer source) that includes a device to cause a trigger condition (trigger) that you set in the step of trigger condition settings.
	Device Name	Specify a Device/PLC to be a data transfer source.

S	Setting item	Setting content
	Device Address	Check this to transfer device values. • When specifying a device address: Enter directly from the Calculator icon. Calculator icon Device Address/Symbol Group • When specifying a symbol: Select the symbol by clicking the list button. List button Device Address/Symbol
Transfer Source	Constant Value	<ul> <li>Check this to transfer a constant value. Type the constant value in the text box.</li> <li><b>NOTE</b> <ul> <li>Specifying a numeral: Specify the numeral itself. Insert a space to specify two or more numerals. (Example) 10 11 12 13 14 15</li> <li>Specifying a character string: Specify the string itself if typable from the keyboard (except for [). (Example) When specifying ABC: ABC</li> <li>Specify an untypable string such as a control code by representing its character code in hexadecimal notation, and enclosing it in square brackets [].</li> <li>(Example) When specifying ABC followed by Carriage return and Line field: ABC[0C][0A]</li> <li>Specify [ by enclosing it in square brackets [].</li> <li>(Example) To specify the string "[ABC]", type [[]ABC[]]</li> </ul> </li> </ul>
	Data Type	<ul> <li>Displayed automatically according to the device (symbol) entered in the Device Address.</li> <li><b>NOTE</b></li> <li>When the symbol has been imported from 'GP-Pro EX', it is necessary to specify the data type.</li> </ul>
	No.	<ul> <li>Displayed automatically according to the device (symbol) entered in the Device Address.</li> <li><b>NOTE</b></li> <li>When the symbol has been imported from 'GP-Pro EX', or when created in 'Pro-Server V4.X', it is necessary to specify the number.</li> </ul>

5	Setting item	Setting content
	Node	Selects an entry node to be a data transfer destination.
	Device Name	Selects a Device/PLC to be a data transfer destination.
		When specifying a device address: Enter directly from the Calculator icon. Calculator icon
	Device Address	• When specifying a symbol:
Transfer Destina- tion		Select the symbol by clicking the list button.
		Device Address/Symbol Group
	Device Address (Add)	To add a device to be a transfer destination, enter the address or symbol of the device to add in the blank field below.
Transfer Destina- tion (Add)	Node Device Name Device Address	To add a new entry node or Device/PLC in the Transfer Destination, enter the address or symbol of the transfer destination to add in the blank field below.

# 19.2.2 Collection Type

■ "Data Transfer (Collection Type)" Screen

Data Transfer (Collection Type)	X
Data Transfer Name Copy1	Trigger Condition
Add Transfer Source	New Trigger Condition
Edit Transfer Source	
Delete	Set Receive Notification
Node.DeviceNa Device Data Type Number	Node.DeviceNa Device Data Type
	Complete

Setting item	Setting content							
Trigger Condition	Click the [New Trigger Condition] button and enter a new trigger condition (trigger) for transferring data. Alternatively, click the list button and specify an existing trigger condition.							
Data Transfer Name	Displays the name of the data transfer that you set on the "Select Data Transfer Type" screen.							
Add Transfer Source	Displays the "Add Data Transfer" screen. Refer to "■"Add Transfer Data" Screen / "Edit Transfer Data" Screen (Collection Type)" for more details.							
Edit Transfer Source	Displays the "Edit Data Transfer" screen. Refer to "■""Add Transfer Data" Screen / "Edit Transfer Data" Screen (Collection Type)" for more details.							
Set Receive Notification	Displays the receive notification settings screen. Refer to "■ Receive Notification Settings Screen" for more details.							
Setting Content Display Window	Displays information of transfer source on the left side, and information of transfer destination on the right side.							
Delete	Deletes selected contents.							

■ "Add Transfer Data" Screen / "Edit Transfer Data" Screen (Collection Type)

Add Transfer Data	×
Transfer Source Node AGP1 Device Name HINTERNAL	Transfer Destination Node PC1 Device Name #INTERNAL
Device Address     C Constant Value	Device Address           Device Address           Data Type           16Bit(Signed)
Data Type 16Bit(Signed) No. 1	OK Cancel

Se	tting item	Setting content						
	Node	Selects an entry node to be a data transfer source.						
	Device Name	Selects a Device/PLC to be a data transfer source.						
		• When specifying a device address: Enter directly from the Calculator icon.						
Transfer Source	Device Address	List button Device Address/Symbol  Group  • When specifying a symbol: Select the symbol by clicking the list button. Calculator icon Device Address/Symbol Group						
	Data Type	<ul> <li>Displayed automatically according to the device (symbol) entered in the Device Address.</li> <li><b>NOTE</b></li> <li>When the symbol has been imported from 'GP-Pro EX', it is necessary to specify the data type.</li> </ul>						
Transfer Destination	Node	Displays the entry node (recognized automatically as a transfer destination) that you set in the step of trigger condition settings.						
Destination	Device Name	Selects a Device/PLC to be a data transfer destination.						

Set	ting item	Setting content							
Transfer Destination	Device Address	When specifying a device address: Enter directly from the Calculator icon. Calculator icon Device Address/Symbol Group      When specifying a symbol: Select the symbol by clicking the list button. List button Device Address/Symbol Group							
	Data Type	<ul> <li>Displayed automatically according to the device (symbol) entered in the Device Address.</li> <li><b>NOTE</b></li> <li>When the symbol has been imported from 'GP-Pro EX', it is necessary to specify the data type.</li> </ul>							

# Receive Notification Settings Screen

Bit device notifying completion of a copy (When completed, it turns DN).	at the copy destin	ation				×
		Rece	eive Notification Destinatio	n		
Device Address that received the data	Device Name		Device Address	Da	ta Type	
[AGP2.PLC1]TransferDestination2	#INTERNAL			▼ <u>Bi</u>		
			OK		Cancel	

Se	etting item	Setting content							
Device Addr the data	ess that received	Displays the device address (symbol) you set.							
	Device Name	Selects a Device/PLC to be a receive notification destination.							
Receive Notification Destination	Device Address	<ul> <li>When the "Receive Notification" is turned on, the specified bit device will be turned on when data transfer is completed.</li> <li>Enter a device address itself of the Device/PLC, or alternatively, click the list button to select a symbol.</li> <li><b>NOTE</b></li> <li>To execute ACTION sequentially after the data transfer is completed, this can be used as a trigger condition (trigger) of the subsequent ACTION.</li> </ul>							

# 19.3 Restrictions

### Restrictions on Data Transfer

(1) In the case of data transfer of collection type, the transfer destination must not be the one selected from GP Series nodes.

(2) If the transfer source node or transfer destination node is a GP Series node, you cannot specify a group as the device address.

(3) When General Broadcast is set, you cannot transfer to the SP-5B40/WinGP node.

(4) A GP Series node can process up to three times of transfer and reception operations when one trigger condition has been satisfied. Consequently the maximum registration number is three when you specify the same GP Series node as transfer source nodes or transfer destination nodes.

(5) In the case when the transfer source and the transfer destination are the ones selected from GP Series nodes and the devices are the ones with physical size of 32 bits, the data type must not be of 16 bits width.

(6) In the case when the specified transfer source and the specified transfer destination of transfer data are of BCD type, BCD conversion will not be executed. The BCD data will be handled as binary data.
In the case when BCD code is used for trigger conditions (trigger) or for the computing equation of trigger conditions (trigger), it will be recognized after the conversion of BCD code to binary code. In the case of access via Pro-Easy API, BCD conversion will be executed.

"37.2 Restrictions on Pro-Server EX"

(7) In the case when the number of data of the specified symbols is different between the transfer source and the transfer destination, the number of data equal to that of the transfer source will be transferred.

(8) Maximum registerable number of data transfer, the total number of data transfer destination plus ACTION, must be 3000.

(9) To transfer the data from the GP Series nodeto the SP-5B40/WinGP node, update the 2Way driver version to 4.55 or later.

(10) The transferable data type depends on the type of entry node. The following shows combination of the transferable data types and entry nodes.

Data transfer is possible even between different types of data. The explanation about data conversion rule and restrictions in this case is given below.

• When the transfer source node or transfer destination node includes a GP Series node

Transferable only when the transfer source and the transfer destination are of same data type.

• When the transfer source node or transfer destination node does not include a GP Series node

		The data type of transfer destination																					
		Bit	8 Bit (Signed)	8 Bit (Unsigned)	8 Bit (HEX)	8 Bit (BCD)	16 Bit (Signed)	16 Bit (Unsigned)	16 Bit (HEX)	16 Bit (BCD)	32 Bit (Signed)	32 Bit (Unsigned)	32 Bit (HEX)	32 Bit (BCD)	TIME	TIME_OF_DAY	DATE	DATE_AND_TIME	Float	Double	String	Group	
	Bit	0	×	×	×	×		( EX	) (1			( Ex	) :.2		×	×	×	×	×	×	0 1	×	
	8 Bit (Signed)	×	0	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	
	8 Bit (Unsigned)	×	×	0	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	
	8 Bit (HEX)	×	×	×	0	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	
	8 Bit (BCD)	×	×	×	×	0	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	
	16 Bit (Signed)	0		×	×	×	×									×	×	×	×				
	16 Bit (Unsigned)		×	×	×	×	0		0 *2	O Ex.3		.3 .3	×	×	×	×	×	×	े •	0			
8	16 Bit (HEX)	Ex.1	×	×	×	×									×	×	×	×		^		Ex.4	
The data type of transfer source	16 Bit (BCD)	×		×	×	×		0 5			0 •6			0	×	×	×	×			×		
transf	32 Bit (Signed)		×	×	×	×									×	×	×	×					
ype of	32 Bit (Unsigned)	0	×	×	×	×		O Ex.5		0	0		0		×	×	×	×	×	×	.9	0	
ata 1	32 Bit (HEX)	Ex.2	×	×	×	×									×	×	×	×	Î	Ŷ		Ex.6	
The o	32 Bit (BCD)		×	×	×	×		0 •10		0		0 11		0	×	×	×	×			×		
	TIME	×	×	×	×	×	×	×	×	×	×	×	×	×	0	×	×	×	×	×	х	×	
	TIME_OF_DAY	×	×	×	×	×	×	×	×	×	×	×	×	×	×	0	×	×	×	×	х	×	
	DATE	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	0	×	×	×	×	×	
	DATE_AND_TIME	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	0	×	×	×	×	
	Float	×	×	×	×	×		;	<			>	<		×	×	×	×	0	×	×	×	
	Double	×	×	×	×	×	×				>	<		×	×	×	×	×	0	×	×		
	String	0 •12	×	×	×	×		O Ex.7		×		O Ex.8		×	×	×	×	×	×	×	0 13	×	
	Group	×	×	×	×	×			) .4			( Ex	) :.6		×	×	×	×	×	×	×	O Ex.9	

O: Transferable

X: Not Transferable

- \*1 Expands each bit of the bit string to 8 bits. For example, writes 0 if 0, writes 0xff if 1.
- \*2 In 16-bit unit, converts binary code to BCD code and writes.
- \*3 Converts two 16-bit data from binary code to BCD code and copies them as a BCD data of 32 bits.
- \*4 Copies 16-bit data without conversion.
- \*5 In 16-bit unit, converts BCD code to binary code and writes.
- \*6 In 16-bit unit, converts BCD code to binary code and copies two 16-bit data as a 32-bit data.

- \*7 In 32-bit unit, converts binary code to BCD code and writes a 32-bit data as two 16-bit data.
- \*8 In 32-bit unit, converts binary code to BCD code and writes.
- \*9 Copies 32-bit data without conversion.
- \*10 In 32-bit unit, converts BCD code to binary code and copies a 32-bit data as two 16-bit data.
- \*11 In 32-bit unit, converts BCD code to binary code and writes.
- \*12 In 8-bit unit, writes 0 if 0, and creates and writes one-bit string if not 0. (Conversion in character string mode not executed)
- \*13 Converts data in character string mode both in the transfer source and the transfer destination, and copies. Refer to "Data Conversion Example" for explanations about Example 1 to Example 9.

. . . .

32bit

### Data Conversion Example

1) In the case of transferring data of bit symbol or bit device itself and of each data type.





16bit D15		D0
	(0)	(1)
	(0)	(2)
	(0)	(3)

(Example 2)





D31		D0
	(0)	(1)
	(0)	(2)
	(0)	(3)

2) In the case of transferring data using the group symbol with the following structure (A combination of bit symbol, word symbol and bit symbol; the number of data of which are 1, 1, and 3, respectively).



16bit D15		D0
	(0)	(1)
	(2)	
	(0)	(3)
	(0)	(4)
	(0)	(5)

(Example 6)

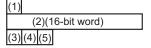


32bit D31		D16[	D15	D0
		(0)		(1)
	(0)		(2)	
		(0)		(3)
		(0)		(4)
		(0)		(5)

(Example 9)

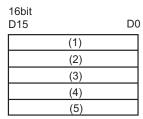


Same type	of group
-----------	----------



### 3) In the case of transferring 16-bit data

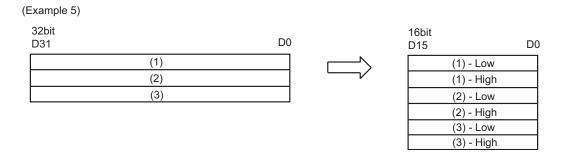
(Example 3)





32bit D31	D1	6D15	D0
	(2)	(1)	
	(4)	(3)	
	(0)	(5)	

4) In the case of transferring 32-bit data



• The order of Low and High on the 16-bit side depends on the type of the Device/PLC. Refer to 'GP-Pro EX Device/PLC Connection Manual' or 'GP-Pro PBIII Device/PLC Connection Manual' for more details.

#### 5) In the case of transferring character string data

(Example 7)				
8bit D7 D0	16bit D15	D0		
(1) (2) (3) (4) (5)	(2) (4) (0)	(1) (3) (5)		
(Example 8)				
8bit D7 D0	32bit D31			D0
(1)	(4)	(3)	(2)	(1)
(2)	(0)	(0)	(0)	(5)
(3) (4) (5)				

NOTE

• When the transfer destination is of character string, the conversion method depends on the physical size of the transfer destination; 16 bits or 32 bits.

• The order of the character string depends on the character string mode.