OMRON Corporation

OMR_ETIP_23
04/2026

CS/CJ/NJ Series EtherNet/IP Driver

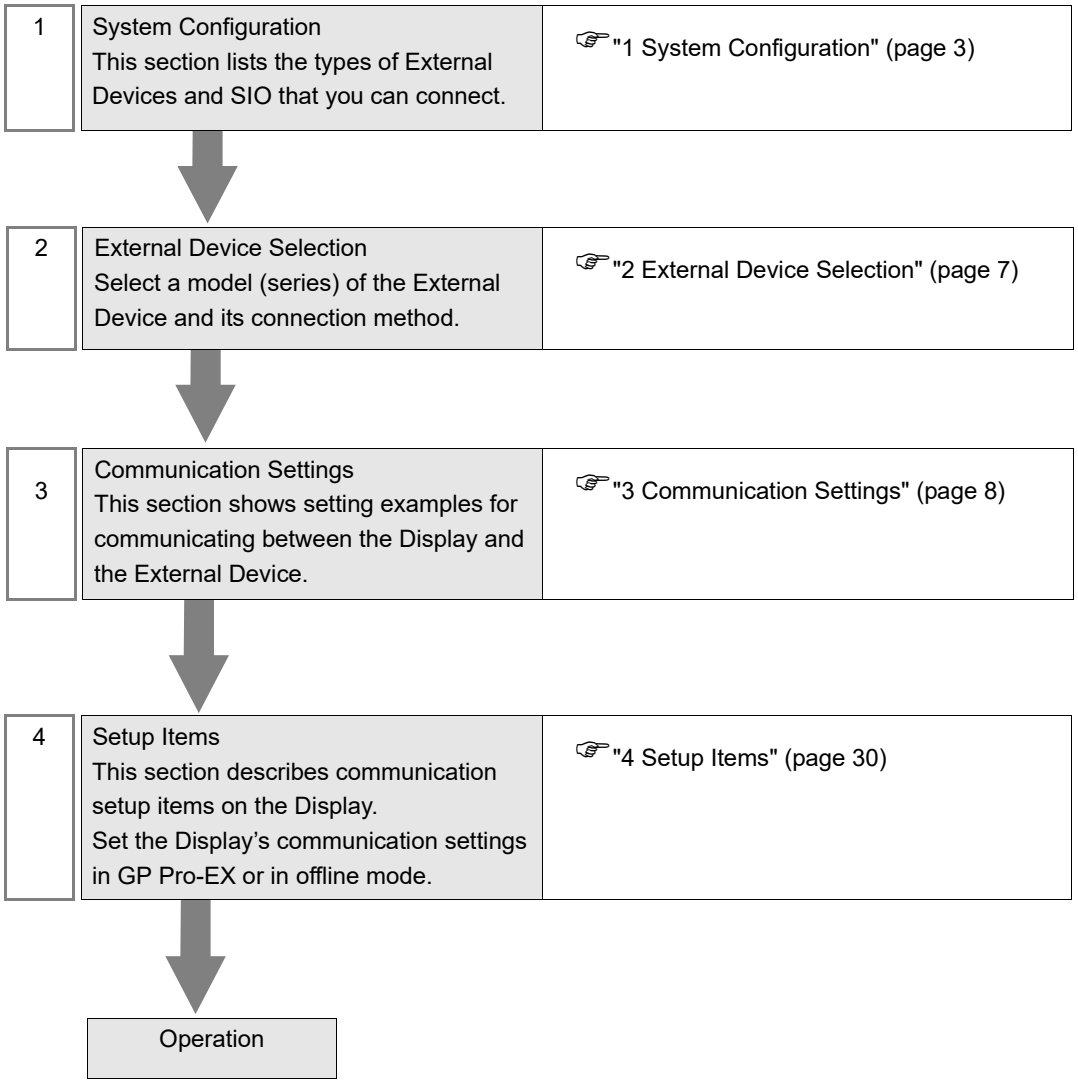
IMPORTANT

- The below Displays are no longer sold nor maintained by Pro-face. To reduce unplanned downtime due to aged hardware and to maximize your cyber security environment we recommend replacing your devices with a new, successor model. For details, please visit our homepage for "Recommended Substitution". Discontinued from GP-Pro EX 5.00 onwards: GP3000 Series, GP-4100 Series (Monochrome model), LT3000 Series, ST3000 Series, PL Series, PE4000 Series, PS2000/3000/4000 Series.
- For details on the Displays supported by the driver, please check the "Connectable Devices" on our website.
  http://www.pro-face.com/trans/en/manual/1064.html

Introduction

This manual describes how to connect the Display and the External Device (target PLC).

In this manual, the connection procedure is described in the sections identified below:



1 System Configuration

The system configuration in the case when the External Device and the Display are connected is shown.

Series	CPU	Link I/F	SIO Type	Setting Example
CS1 Series	CS1H-CPU67H CS1H-CPU66H CS1H-CPU65H CS1H-CPU64H CS1H-CPU63H CS1H-CPU67 CS1H-CPU66 CS1H-CPU65 CS1H-CPU64 CS1H-CPU63 CS1H-CPU67-V1 CS1H-CPU66-V1 CS1H-CPU65-V1 CS1H-CPU64-V1 CS1H-CPU63-V1 CS1G-CPU45H CS1G-CPU44H CS1G-CPU43H CS1G-CPU42H CS1G-CPU45 CS1G-CPU44 CS1G-CPU43 CS1G-CPU42 CS1G-CPU45-V1 CS1G-CPU44-V1 CS1G-CPU43-V1 CS1G-CPU42-V1	CS1W-EIP21	Ethernet (TCP)	Setting Example 1 (page 8)
CJ2 Series	CJ2H-CPU68-EIP CJ2H-CPU67-EIP CJ2H-CPU66-EIP CJ2H-CPU65-EIP CJ2H-CPU64-EIP CJ2M-CPU35 CJ2M-CPU34 CJ2M-CPU33 CJ2M-CPU32 CJ2M-CPU31	EtherNet/IP Port on CPU Unit	Ethernet (TCP)	Setting Example 2 (page 10)
NJ Series	NJ501-□□□□ NJ301-□□□□ NJ101-□□□□	EtherNet/IP Port on CPU Unit	Ethernet (TCP)	Setting Example 3 (page 12)
NX1P Series	NX1P2-□□□□□□*1 NX1P2-□□□□□□□*1	Built-in EtherNet/IP Port (PORT1) on CPU unit	Ethernet (TCP)	Setting Example 4 (page 15)

Series	CPU	Link I/F	SIO Type	Setting Example
NX1 Series	NX102-□□□□	Built-in EtherNet/IP Port (PORT1) on CPU unit	Ethernet (TCP)	Setting Example 5 (page 18)
		Built-in EtherNet/IP Port (PORT2) on CPU unit	Ethernet (TCP)	Setting Example 6 (page 21)
NX7 Series	NX701-□□□□	Built-in EtherNet/IP Port (PORT1) on CPU unit	Ethernet (TCP)	Setting Example 5 (page 18)
		Built-in EtherNet/IP Port (PORT2) on CPU unit	Ethernet (TCP)	Setting Example 6 (page 21)
NX502 Series	NX502-1300 NX502-1400 NX502-1500	Built-in EtherNet/IP Port (PORT1) on CPU unit	Ethernet (TCP)	Setting Example 7 (page 24)
		Built-in EtherNet/IP Port (PORT2) on CPU unit	Ethernet (TCP)	Setting Example 8 (page 27)

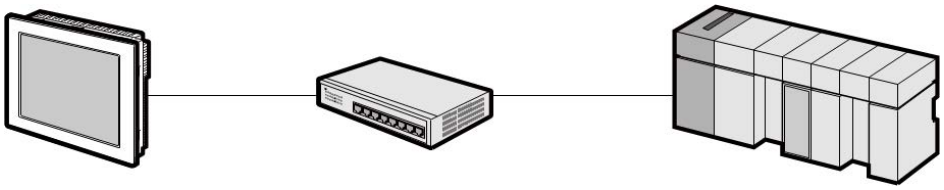
*1 CPU version V1.13.04 or later is required to use the NX1P2.

NOTE

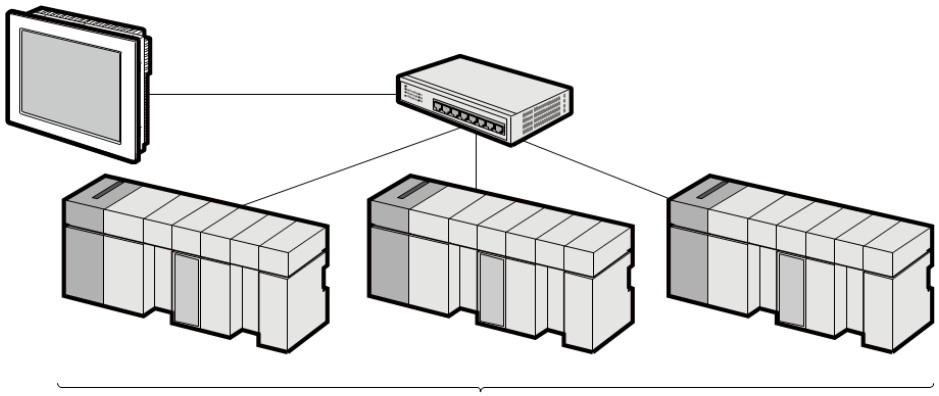
- Connection will be closed when an incommunicable state between the Display and the External Device continues and exceeds the time specified for Timeout for connection. Then, when the Display performs communication, the timeout error is displayed because the connection is closed. The timeout error is restored automatically.
  To prevent the timeout error from being displayed, make the settings so that communication may be performed in a shorter cycle than the specified timeout for connection, using a watchdog timer, and etc.
  The time for Timeout for connection can be calculated using the setting value of the communication settings. When "0" is specified for Retry, however, substitute "1" into the following equation.
  Time for Timeout for connection (s) =
  [Timeout] + ([Timeout] x [Retry]) + ([Wait To Send] x [Retry]) + 2
  Using the equation as shown above, time for Timeout for connection in the default ([Timeout]: 3s, [Retry]: 0 times, and [Wait To Send]: 0ms) should be 8s.

■ Connection Configuration

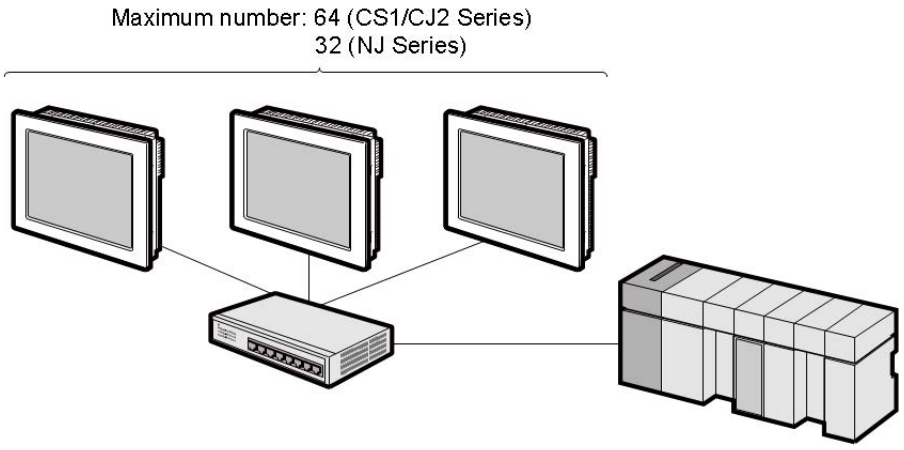
- 1:1 Connection



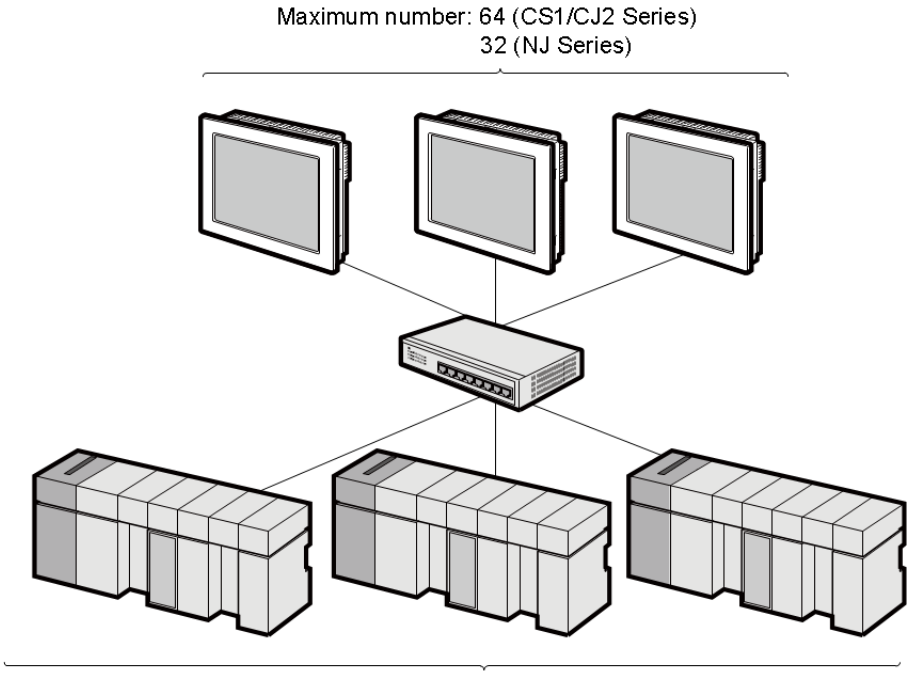
- 1:n Connection



- n:1 Connection

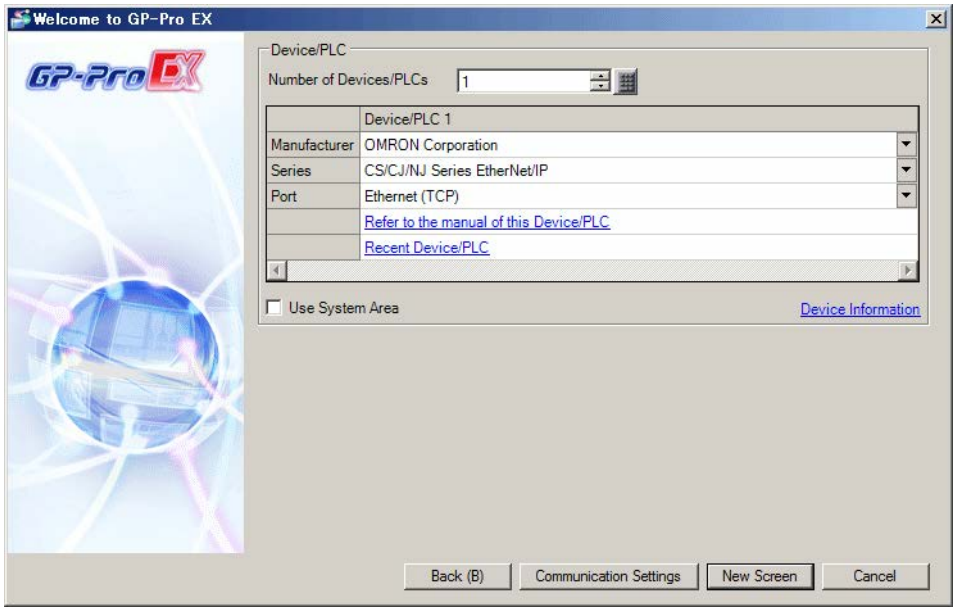


- n:m Connection



2 External Device Selection

Select the External Device to be connected to the Display.



Setup Items	Setup Description
Number of Devices/ PLCs	Enter an integer from 1 to 4 to define the number of Devices/PLCs to connect to the display.
Manufacturer	Select the manufacturer of the External Device to be connected. Select "OMRON Corporation".
Series	Select the External Device model (series) and the connection method. Select "CS/CJ/NJ Series EtherNet/IP". In System configuration, make sure the External Device you are connecting is supported by "CS/CJ/NJ Series EtherNet/IP". ☞"1 System Configuration" (page 3)
Port	Select the Display port to connect to the External Device.
Use System Area	Check this option to synchronize the system data area of the Display and the device (memory) of the External Device. When synchronized, you can use the External Device's ladder program to switch the display or display the window on the Display. Cf. GP-Pro EX Reference Manual "LS Area (Direct Access Method Area)" This feature can also be set in GP-Pro EX or in the Display's offline mode. Cf. GP-Pro EX Reference Manual "System Settings [Display Unit] - [System Area] Settings Guide" Cf. Maintenance/Troubleshooting Guide "Main Unit - System Area Settings"

3 Communication Settings

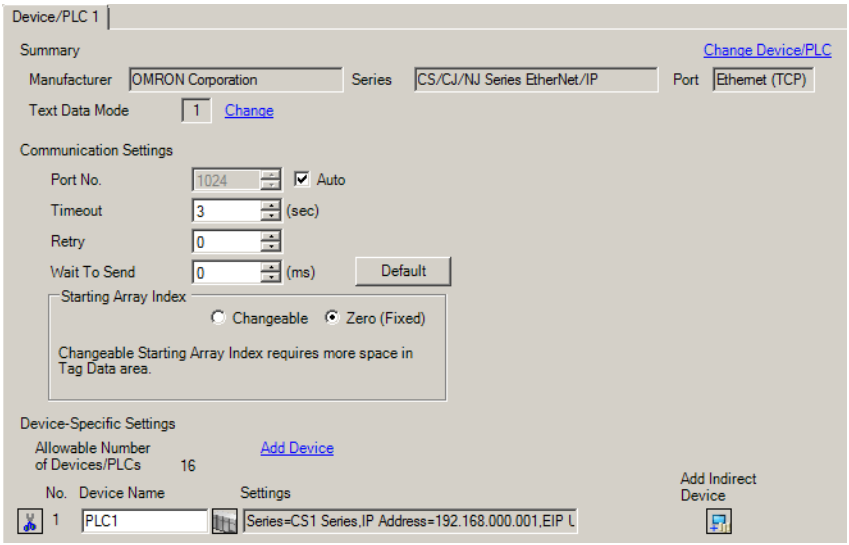
Examples of communication settings of the Display and the External Device, recommended by Pro-face, are shown.

3.1 Setting Example 1

■ GP-Pro EX Settings

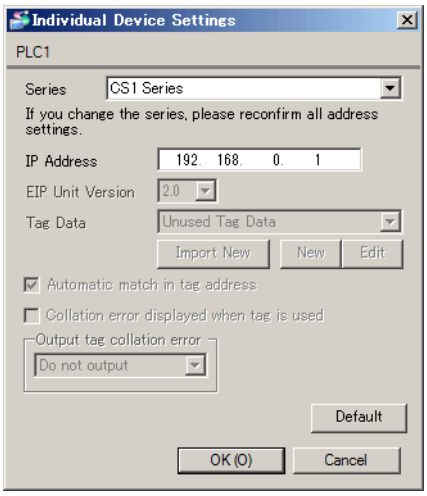
◆ Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].



◆ Device Settings

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings] .



◆ Notes

- Check with a network administrator about IP address. Do not duplicate the IP address on the same network.
- Set IP address on the External Device for IP address in Individual Device Settings.
- You need to set IP address on the Display in the offline mode of the Display.

■ External Device Settings

Use the ladder software (CX-Programmer) to configure communication settings for the External Device. Refer to your External Device manual for details.

1 Start up the ladder software.
2 From [PLC] menu, select [Edit] - [I/O Table and Unit Setup] to display [PLC I/O Table] dialog box.
3 Right-click the Ethernet/IP port to be used.
4 Select [Unit Setup] and display the [Edit Parameters] dialog box.
5 Configure setup items in the [TCP/IP] tab as follows.

Setup Items	Setting Value
IP address	192.168.0.1
Subnet mask	255.255.255.0

6 Click [To PLC] and transfer the communication settings to the External Device.

◆ Notes

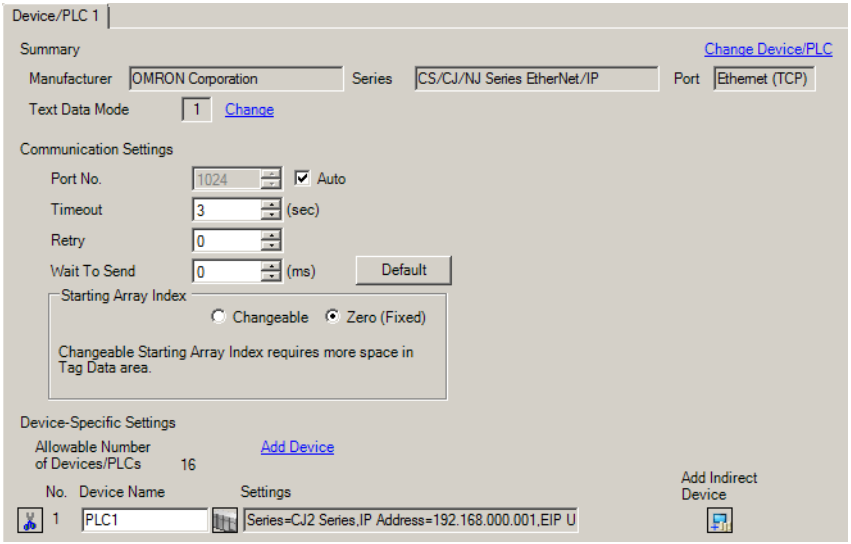
- Check with a network administrator about IP address and subnet mask you want to use. Do not set the duplicate IP address.

3.2 Setting Example 2

■ GP-Pro EX Settings

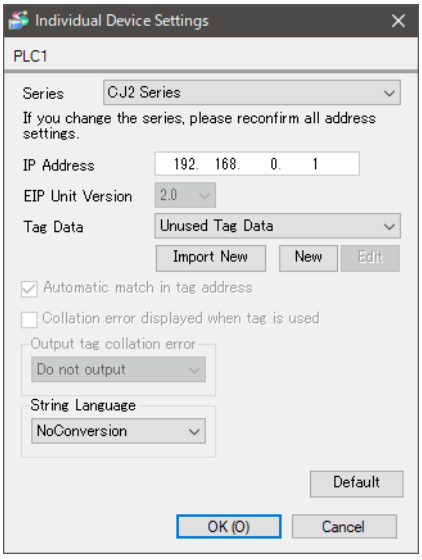
◆ Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].



◆ Device Settings

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings] .



◆ Notes

- Check with a network administrator about IP address. Do not duplicate the IP address on the same network.
- Set IP address on the External Device for IP address in Individual Device Settings.
- You need to set IP address on the Display in the offline mode of the Display.
- Refer to the following when using tag data.

☞"5.3 CJ2 Series (Tag Specification)" (page 38)

■ External Device Settings

Use the ladder software (CX-Programmer) to configure communication settings for the External Device. Refer to your External Device manual for details.

1 Start up the ladder software.
2 From [PLC] menu, select [Edit] - [I/O Table and Unit Setup] to display [PLC I/O Table] dialog box.
3 Right-click the Ethernet/IP port to be used.
4 Select [Unit Setup] and display the [Edit Parameters] dialog box.
5 Configure setup items in the [TCP/IP] tab as follow.

Setup Items	Setting Value
IP address	192.168.0.1
Subnet mask	255.255.255.0

6 Click [To PLC] and transfer the communication settings to the External Device.

◆ Notes

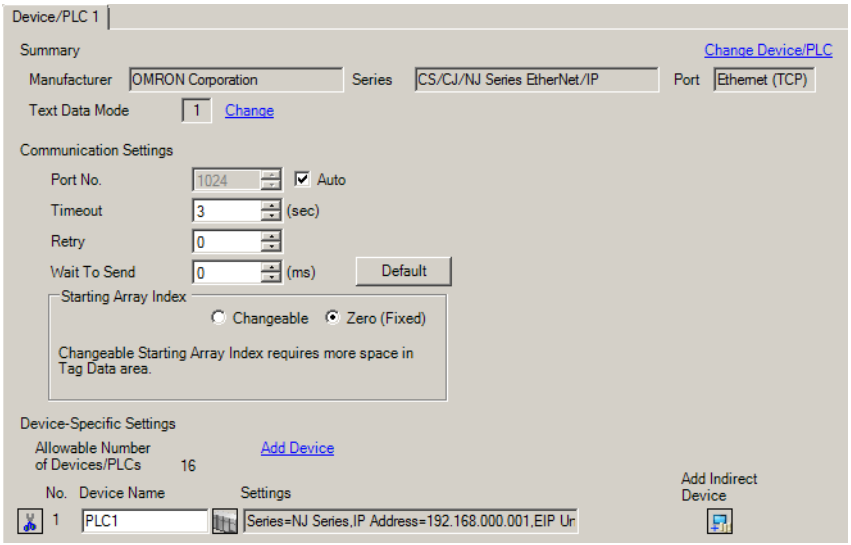
- Check with a network administrator about IP address and subnet mask you want to use. Do not set the duplicate IP address.

3.3 Setting Example 3

■ GP-Pro EX Settings

◆ Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

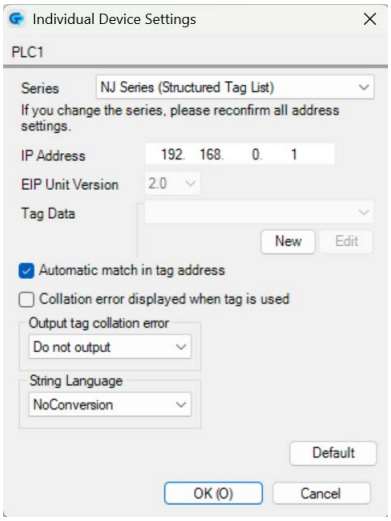


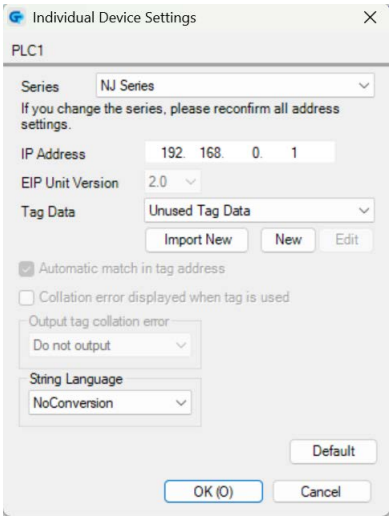
◆ Device Settings

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings] .

NOTE

- When using the NJ Series, select one of the following two series options.
  NJ Series (Structured Tag List):
  Please select this series when creating or importing new tags. Compared with the [NJ Series], tag data defined in the External Device's ladder software (Sysmac Studio) is managed in a clearer and more user-friendly tag list, simplifying tag management.
  NJ Series:
  Select this option when you need to maintain compatibility with existing projects.





◆ Notes

- Check with a network administrator about IP address. Do not duplicate the IP address on the same network.
- Set IP address on the External Device for IP address in Individual Device Settings.
- You need to set IP address on the Display in the offline mode of the Display.
- Refer to the following when setting tag data.

☞"5.4 NJ Series (Tag Specification)/ NJ Series (Structured Tag List)" (page 49)

■ External Device Settings

Use the ladder software (Sysmac Studio) to configure communication settings for the External Device.
Refer to your External Device manual for details.

1 Start up the ladder software.
2 Click the [Configuration] of the [Multiviewer Explorer].
3 Double click [Controller Setup].
4 Double click [Built-in EtherNet/IP Port Setings] to display the setup screen.
5 Select [Fixed settings] from [IP Address] to set the IP address as follows.

Setup Items	Setting Value
IP address	192.168.0.1
Subnet mask	255.255.255.0

6 Transfer the communication settings to the External Device.

◆ Notes

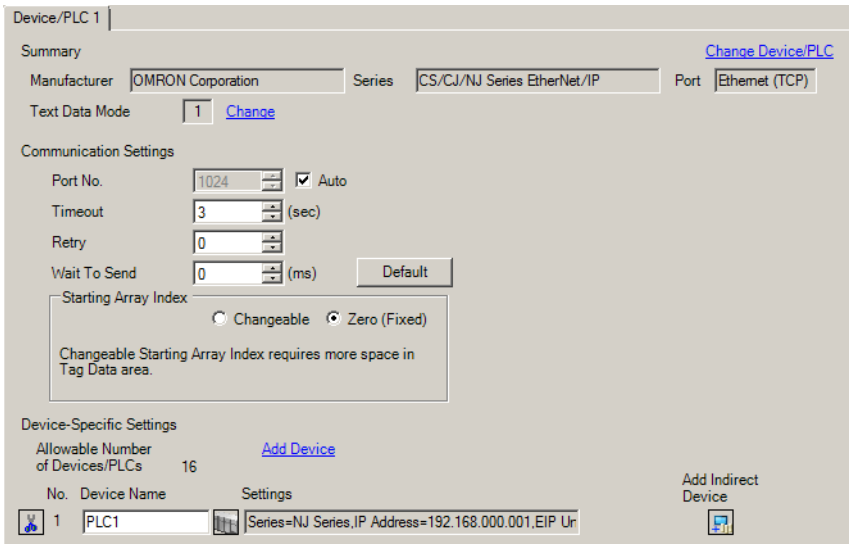
- Check with a network administrator about IP address and subnet mask you want to use. Do not set the duplicate IP address.

3.4 Setting Example 4

■ GP-Pro EX Settings

◆ Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

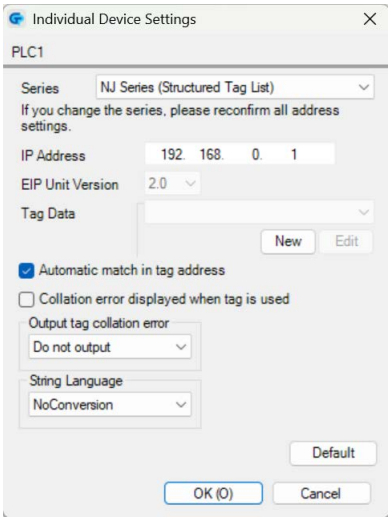


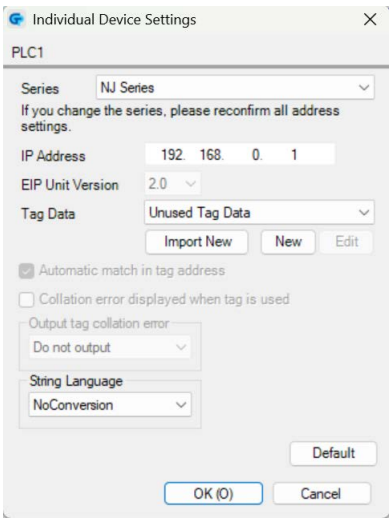
◆ Device Settings

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings] .

NOTE

- When using the NJ Series, select one of the following two series options.
  NJ Series (Structured Tag List):
  Please select this series when creating or importing new tags. Compared with the [NJ Series], tag data defined in the External Device's ladder software (Sysmac Studio) is managed in a clearer and more user-friendly tag list, simplifying tag management.
  NJ Series:
  Select this option when you need to maintain compatibility with existing projects.





◆ Notes

- When using a NX Series, from the [Series] list select [NJ Series (Structured Tag List)] or [NJ Series].
- Check with a network administrator about IP address. Do not duplicate the IP address on the same network.
- Set IP address on the External Device for IP address in Individual Device Settings.
- You need to set IP address on the Display in the offline mode of the Display.
- Refer to the following when setting tag data.

☞"5.5 NX1P / NX1 / NX7 / NX502 Series (Tag Specification)" (page 76)

■ External Device Settings

Use the ladder software (Sysmac Studio) to configure communication settings for the External Device.
Refer to your External Device manual for details.

1 Start up the ladder software.
2 Click the [Configuration] of the [Multiviewer Explorer].
3 Double click [Controller Setup].
4 Double click [Built-in EtherNet/IP Port Setings] to display the setup screen.
5 Select [Fixed settings] from [IP Address] to set the IP address as follows.

Setup Items	Setting Value
IP address	192.168.0.1
Subnet mask	255.255.255.0

6 Transfer the communication settings to the External Device.

◆ Notes

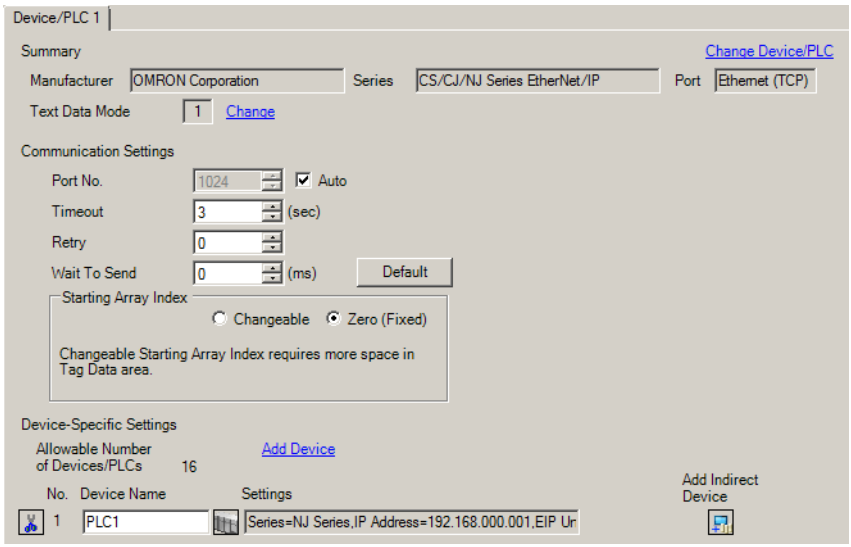
- Check with a network administrator about IP address and subnet mask you want to use. Do not set the duplicate IP address.

3.5 Setting Example 5

■ GP-Pro EX Settings

◆ Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

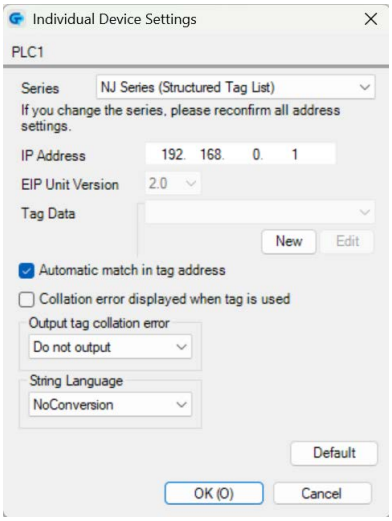


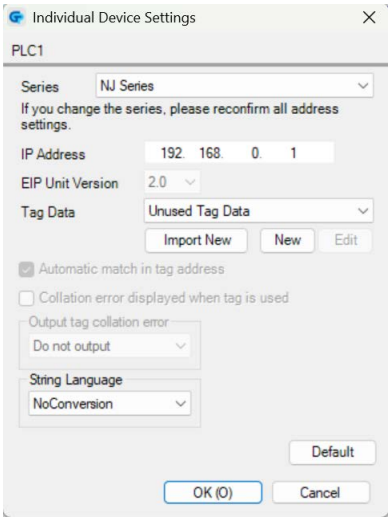
◆ Device Settings

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings] .

NOTE

- When using the NJ Series, select one of the following two series options.
  NJ Series (Structured Tag List):
  Please select this series when creating or importing new tags. Compared with the [NJ Series], tag data defined in the External Device's ladder software (Sysmac Studio) is managed in a clearer and more user-friendly tag list, simplifying tag management.
  NJ Series:
  Select this option when you need to maintain compatibility with existing projects.





◆ Notes

- When using a NX Series, from the [Series] list select [NJ Series (Structured Tag List)] or [NJ Series].
- Check with a network administrator about IP address. Do not duplicate the IP address on the same network.
- Set IP address on the External Device for IP address in Individual Device Settings.
- You need to set IP address on the Display in the offline mode of the Display.
- Refer to the following when setting tag data.

☞"5.5 NX1P / NX1 / NX7 / NX502 Series (Tag Specification)" (page 76)

■ External Device Settings

Use the ladder software (Sysmac Studio) to configure communication settings for the External Device.
Refer to your External Device manual for details.

1 Start up the ladder software.
2 From [Multiviewer Explorer], click [Configuration].
3 Double click [Controller Setup].
4 Double click [Built-in EtherNet/IP Port Setings] to display the setup screen.
5 From [IP Address - Port1], select [Fixed settings] to set the IP address as follows.

Setup Items	Setting Value
IP address	192.168.0.1
Subnet mask	255.255.255.0

6 Transfer the communication settings to the External Device.

◆ Notes

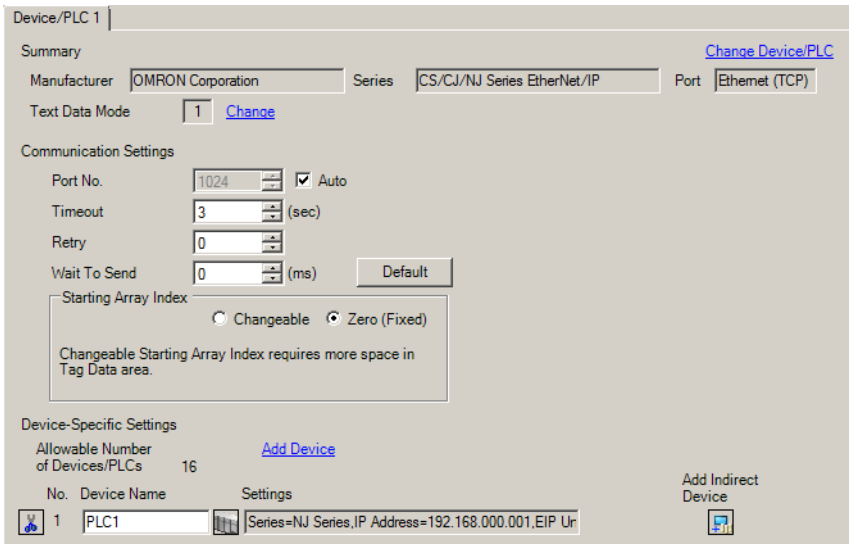
- Check with a network administrator about IP address and subnet mask you want to use. Do not set the duplicate IP address.

3.6 Setting Example 6

■ GP-Pro EX Settings

◆ Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

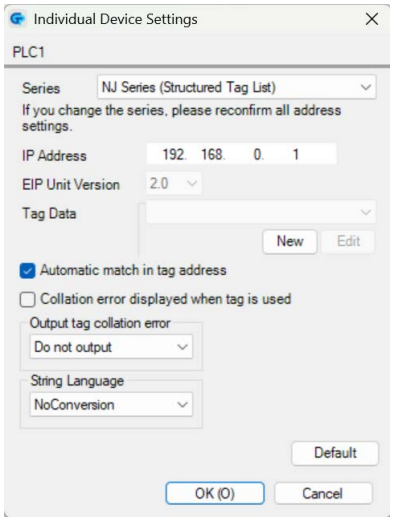


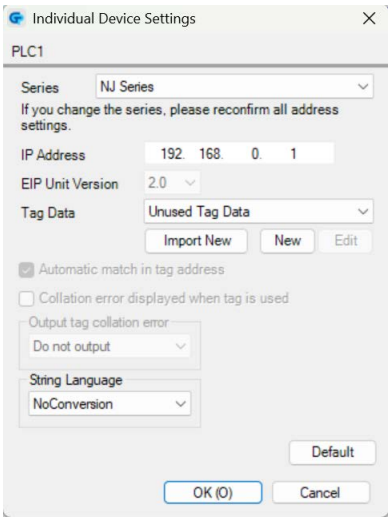
◆ Device Settings

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings] .

NOTE

- When using the NJ Series, select one of the following two series options.
  NJ Series (Structured Tag List):
  Please select this series when creating or importing new tags. Compared with the [NJ Series], tag data defined in the External Device's ladder software (Sysmac Studio) is managed in a clearer and more user-friendly tag list, simplifying tag management.
  NJ Series:
  Select this option when you need to maintain compatibility with existing projects.





◆ Notes

- When using a NX Series, from the [Series] list select [NJ Series (Structured Tag List)] or [NJ Series].
- Check with a network administrator about IP address. Do not duplicate the IP address on the same network.
- Set IP address on the External Device for IP address in Individual Device Settings.
- You need to set IP address on the Display in the offline mode of the Display.
- Refer to the following when setting tag data.

☞"5.5 NX1P / NX1 / NX7 / NX502 Series (Tag Specification)" (page 76)

■ External Device Settings

Use the ladder software (Sysmac Studio) to configure communication settings for the External Device.
Refer to your External Device manual for details.

1 Start up the ladder software.
2 From the [Multiviewer Explorer], click [Configuration].
3 Double click [Controller Setup].
4 Double click [Built-in EtherNet/IP Port Setings] to display the setup screen.
5 From [IP Address - Port2], select the [Use the Port2] check box.
6 Select [Fixed settings] to set the IP address as follows.

Setup Items	Setting Value
IP address	192.168.0.1
Subnet mask	255.255.255.0

NOTE
- Port 2 must be configured to a different network than port 1. When the IP address for Port 2 is 198.168.0.1, set Port 1 to 192.168.1.1.

7 Transfer the communication settings to the External Device.

◆ Notes

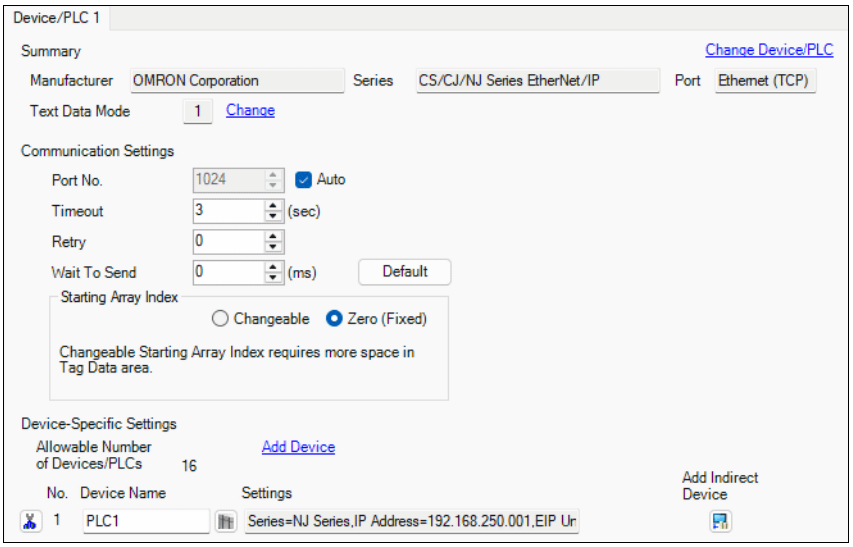
- Check with a network administrator about IP address and subnet mask you want to use. Do not set the duplicate IP address.

3.7 Setting Example 7

■ GP-Pro EX Settings

◆ Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

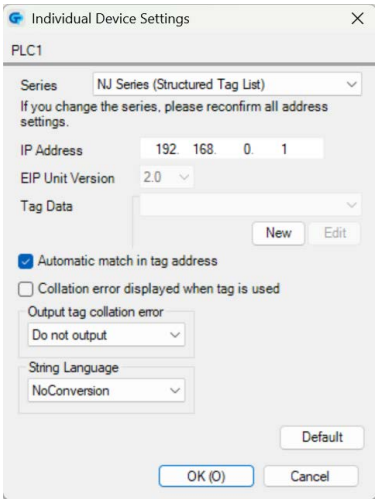


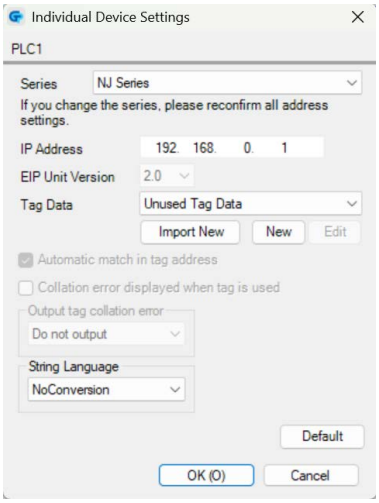
◆ Device Settings

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings] .

NOTE

- When using the NJ Series, select one of the following two series options.
  NJ Series (Structured Tag List):
  Please select this series when creating or importing new tags. Compared with the [NJ Series], tag data defined in the External Device's ladder software (Sysmac Studio) is managed in a clearer and more user-friendly tag list, simplifying tag management.
  NJ Series:
  Select this option when you need to maintain compatibility with existing projects.





◆ Notes

- When using a NX502 Series, from the [Series] list select [NJ Series (Structured Tag List)] or [NJ Series].
- Check with a network administrator about IP address. Do not duplicate the IP address on the same network.
- Set IP address on the External Device for IP address in Individual Device Settings.
- You need to set IP address on the Display in the offline mode of the Display.
- Refer to the following when setting tag data.

☞"5.5 NX1P / NX1 / NX7 / NX502 Series (Tag Specification)" (page 76)

■ External Device Settings

Use the ladder software (Sysmac Studio) to configure communication settings for the External Device.
Refer to your External Device manual for details.

1 Start up the ladder software.
2 From [Multiviewer Explorer], click [Configuration].
3 Double click [Controller Setup].
4 Double click [Built-in EtherNet/IP Port Setings] to display the setup screen.
5 From [IP Address - Port1], select [Fixed settings] to set the IP address as follows.

Setup Items	Setting Value
IP address	192.168.250.1
Subnet mask	255.255.255.0

6 Transfer the communication settings to the External Device.

◆ Notes

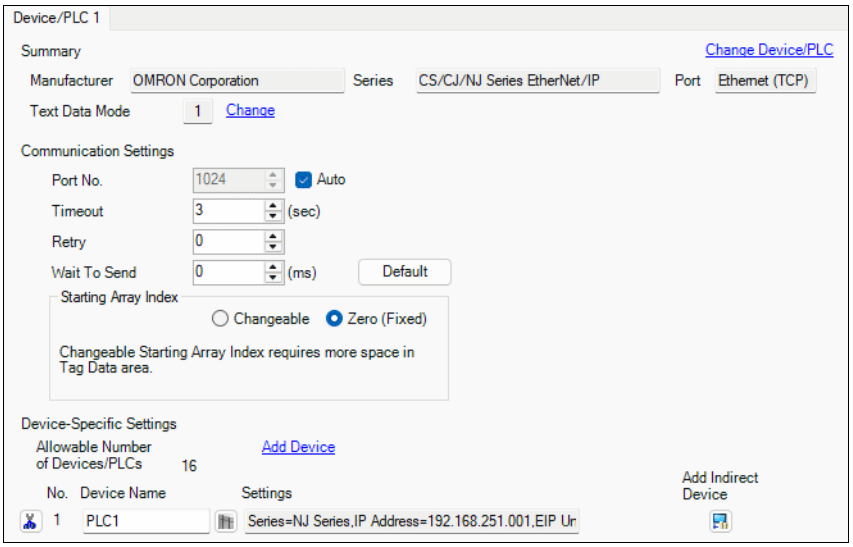
- Check with a network administrator about IP address and subnet mask you want to use. Do not set the duplicate IP address.

3.8 Setting Example 8

■ GP-Pro EX Settings

◆ Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].

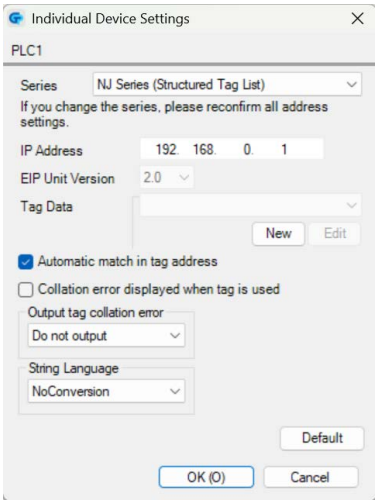


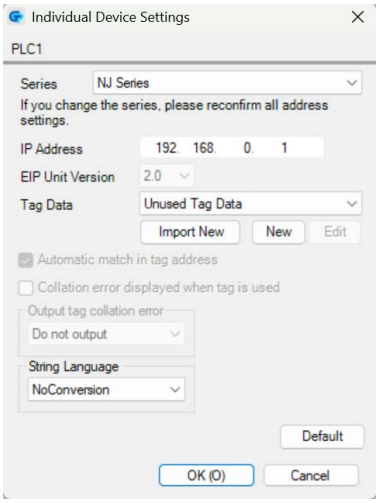
◆ Device Settings

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings] .

NOTE

- When using the NJ Series, select one of the following two series options.
  NJ Series (Structured Tag List):
  Please select this series when creating or importing new tags. Compared with the [NJ Series], tag data defined in the External Device's ladder software (Sysmac Studio) is managed in a clearer and more user-friendly tag list, simplifying tag management.
  NJ Series:
  Select this option when you need to maintain compatibility with existing projects.





◆ Notes

- When using a NX502 Series, from the [Series] list select [NJ Series (Structured Tag List)] or [NJ Series].
- Check with a network administrator about IP address. Do not duplicate the IP address on the same network.
- Set IP address on the External Device for IP address in Individual Device Settings.
- You need to set IP address on the Display in the offline mode of the Display.
- Refer to the following when setting tag data.

☞"5.5 NX1P / NX1 / NX7 / NX502 Series (Tag Specification)" (page 76)

■ External Device Settings

Use the ladder software (Sysmac Studio) to configure communication settings for the External Device.
Refer to your External Device manual for details.

1 Start up the ladder software.
2 From the [Multiviewer Explorer], click [Configuration].
3 Double click [Controller Setup].
4 Double click [Built-in EtherNet/IP Port Setings] to display the setup screen.
5 From [IP Address - Port2], select the [Use the Port2] check box.
6 Select [Fixed settings] to set the IP address as follows.

Setup Items	Setting Value
IP address	192.168.251.1
Subnet mask	255.255.255.0

NOTE
- Port 2 must be configured to a different network than port 1. For example, if the IP address for Port 2 is 198.168.251.1, port 1 should be set to 192.168.250.1, etc.

7 Transfer the communication settings to the External Device.

◆ Notes

- Check with a network administrator about IP address and subnet mask you want to use. Do not set the duplicate IP address.

4 Setup Items

Set up the Display's communication settings in GP Pro-EX or in the Display's offline mode.

The setting of each parameter must match that of the External Device.

☞"3 Communication Settings" (page 8)

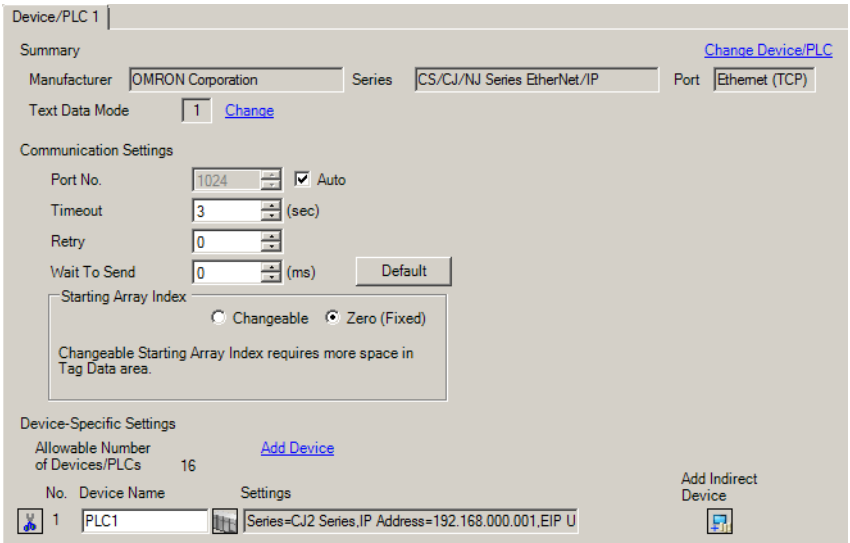
NOTE

- You need to set IP address on the Display in the offline mode of the Display.
  Cf. Maintenance/Troubleshooting Guide "Ethernet Settings"

4.1 Setup Items in GP Pro-EX

■ Communication Settings

To display the setup screen, from the [Project] menu, point to [System Settings] and select [Device/PLC].



Setup Items	Setup Description
Port No.	Use an integer from "1024 to 65535" to enter the port number of the Display. If you check [Auto], the port number will be automatically set.
Timeout	Enter the time (seconds) for which the Display waits for the response from the External Device, from "1 to 127".
Retry	In case of no response from the External Device, enter how many times the Display retransmits the command, from "0 to 255".
Wait To Send	Enter the standby time (milliseconds) from when the Display receives packets until it transmits the next command, from "0 to 255".
Starting Array Index	Select how to set the starting array index. Select [Changeable] when setting the starting array index on the NJ/NX1P/NX1/NX7/NX502 series. Note, however, that the tag will require more space to store the starting array index. For other than the NJ/NX1P/NX1/NX7/NX502 series, select Zero (Fixed).

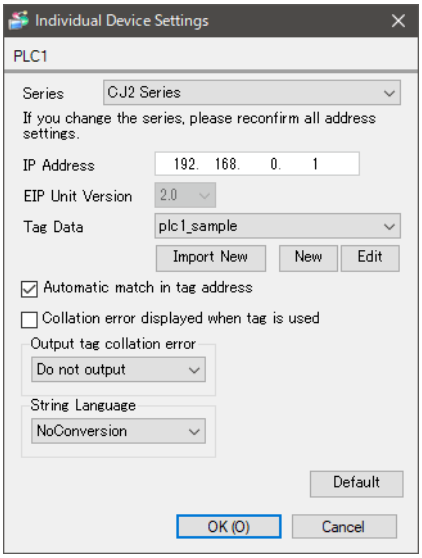
NOTE

- Refer to the GP-Pro EX Reference Manual for Indirect Device.
  Cf. GP-Pro EX Reference Manual "Changing the Device/PLC at Runtime (Indirect Device)"

■ Device Settings

To display the [Individual Device Settings] dialog box, from [Device-Specific Settings] in the [Device/PLC] window, select the external device and click [Settings] .

To connect multiple External Devices, from [Device-Specific Settings] in the [Device/PLC] window, click [Add Device] to add another External Device.



Setup Items	Setup Description
Series	Select the model of the External Device.
IP address	Set IP address of the External Device. **NOTE** • Check with a network administrator about IP address. Do not set the duplicate IP address.
EIP Unit Version	Display supported EIP unit versions.
Tag Data	When "CJ2 Series", "NJ Series" or "NJ Series (Structured Tag List)" is selected in [Series], select the tag data to define tags to the External Device. Select "Unused Tag Data" if you do not use tag data. Click [New] to create new tag data. When "CS1 Series" is selected, "Unused Tag Data" is set. • CJ2 Series ☞" ■ Tag List Dialog Settings" (page 40) • NJ Series / NJ Series (Structured Tag List) ☞" ■ Tag List Dialog Settings" (page 52) • NX1P / NX1 / NX7 Series ☞" ■ Tag List Dialog Settings" (page 79)
Automatic match in tag address	Use this operation when the Display and External Device use the same tag names but have different configurations. When this check box is selected: Performs [Automatic match in tag address]. Tags are based on the External Device tag settings. When this check box is cleared: Does not perform [Automatic match in tag address]. When tag configurations are different, it produces a tag collation error.

Setup Items	Setup Description
Collation error displayed when tag is used	You can define when to display tag collation errors. When this check box is selected: Display error message when reading from or writing to tags with a collation error. When this check box is cleared: Display error message when restarting the Display.
Output tag collation error	You can define the location where to output tag collation errors. You can define either the [CF/SD Card] or [USB Storage]. Errors are output as a CSV file. If you do not want to output a CSV file, select [Do not output].
String Language	Convert the data in a STRING type from the default UTF-8 to the specified encoding type. When displaying on a data display unit, etc., set the display language of the part as well.

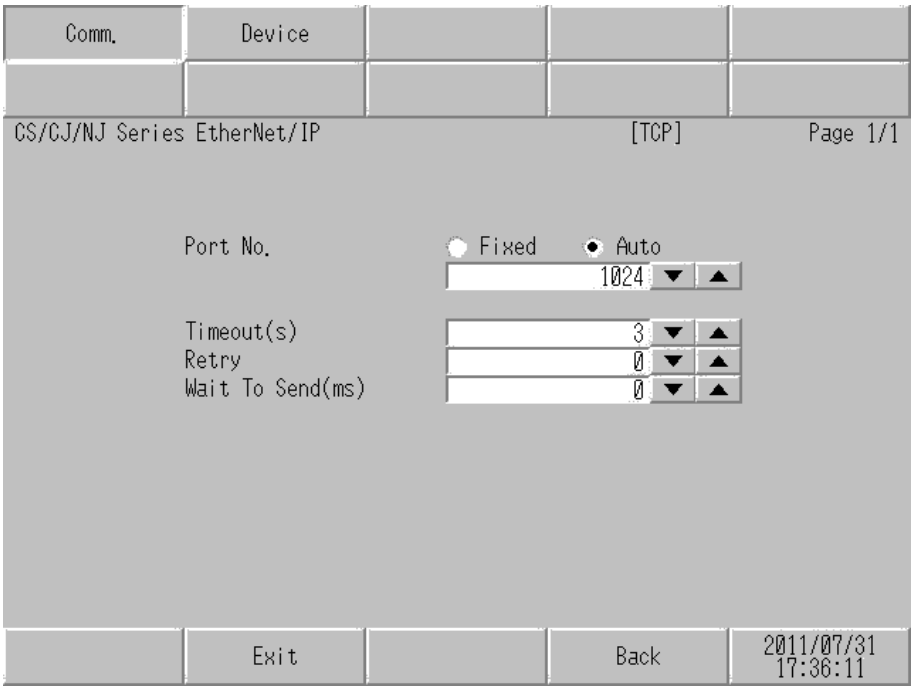
4.2 Offline Mode Settings

NOTE

- Refer to the Maintenance/Troubleshooting manual for information on how to enter offline mode or about the operation.
  Cf. Maintenance/Troubleshooting Guide "Offline Mode"
- The number of the setup items to be displayed for 1 page in the offline mode depends on the Display in use. Please refer to the Reference manual for details.

■ Communication Settings

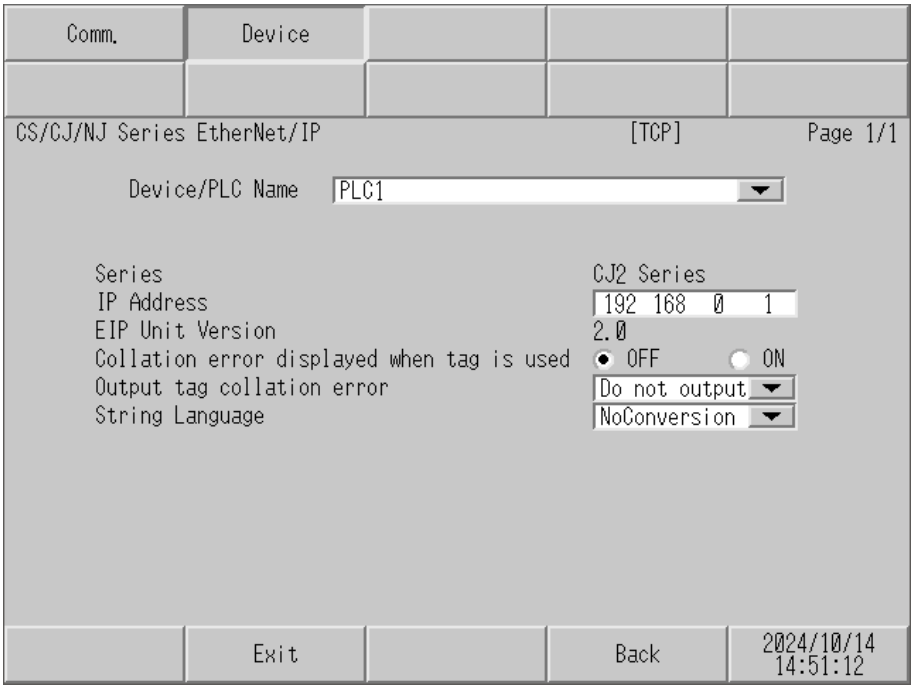
To display the setting screen, from [Peripheral Equipment Settings] in offline mode, touch [Device/PLC Settings]. Touch the External Device you want to set from the displayed list.



Setup Items	Setup Description
Port No.	Set the port number of the Display. Select either [Fixed] or [Auto]. When you select [Fixed], use an integer from 1024 to 65535 to enter the port number of the Display. When you select [Auto], the port number will be automatically assigned regardless of the entered value.
Timeout	Enter the time (seconds) for which the Display waits for the response from the External Device, from "1 to 127".
Retry	In case of no response from the External Device, enter how many times the Display retransmits the command, from "0 to 255".
Wait To Send	Enter the standby time (milliseconds) from when the Display receives packets until it transmits the next command, from "0 to 255".

■ Device Settings

To display the setting screen, touch [Device/PLC Settings] from [Peripheral Equipment Settings]. Touch the External Device you want to set from the displayed list, and touch [Device].

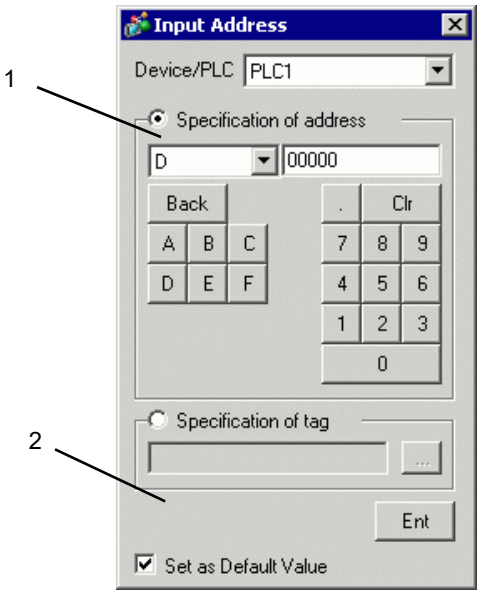


Setup Items	Setup Description
Device/PLC Name	Select the External Device to set as a device. Device/PLC name is the title of the External Device set with GP-Pro EX. (Initial value [PLC1])
Series	Displays the series of the External Device.
IP address	Set IP address of the External Device. **NOTE** • Check with a network administrator about IP address. Do not set the duplicate IP address.
EIP Unit Version	Displays supported EIP unit versions.
Collation error displayed when tag is used	You can define when to display tag collation errors. When ON: Display error message when reading from or writing to tags with a collation error. When OFF: Display error message when restarting the Display.
Output tag collation error	You can define the location where to output tag collation errors. You can define either the [CF/SD Card] or [USB Storage]. Errors are output as a CSV file. If you do not want to output a CSV file, select [Do not output].
String Language	Convert the data in a STRING type from the default UTF-8 to the specified encoding type. When displaying on a data display unit, etc., set the display language of the part as well.

5 Supported Device Addresses

The following section shows the range of supported device addresses. Please note that the actual supported range of the devices vary depending on the External Device to be used. Please check the actual range in the manual of your External Device.

Enter the External Device address in the dialog box below.



Select either [Specification of address] or [Specification of tag] to set addresses.

1. Specification of address	Enabled when the series of External Device is set to "CS1 Series" or "CJ2 Series". Enter addresses.
2. Specification of tag	Enabled when the series of External Device is set to "CJ2 Series" or "NJ Series". Enter a tag name in the input tag control.

NOTE

- When [Set as Default Value] is selected, the value displays as the default when entering a new address.

5.1 CS1 Series

This address can be specified as system data area.

Device	Bit Address	Word Address	32 bit	Remarks
Channel IO Area	0000.00-6143.15	0000-6143		*1
Internal Auxiliary Relay	W000.00-W511.15	W000-W511		
Special Auxiliary Relay	A00000.00-A00959.15	A00000-A00959		*2
Hold Relay	H0000.00-H0511.15	H0000-H0511		
Timer (Completion Flag)	T0000-T4095	-		*3
Counter (Completion Flag)	C0000-C4095	-		*3
Timer (Preset Value)	-	T0000-T4095		
Counter (Preset Value)	-	C0000-C4095	L/H	
Data Memory	D00000.00-D32767.15	D00000-D32767		*1
EM Area (E0-EC)	E000000.00-EC32767.15	E000000-EC32767		*4
EM Area (Current bank)	EM00000.00-EM32767.15	EM00000-EM32767		
Task Flag Area (Bit)	TKB000-TKB031	-		*3
Task Flag Area (Status)	TK000.00-TK031.07	TK000-TK030		÷2 *3
Index Registers	-	IR00-IR15		Bit 31 *5
Data Registers	-	DR00-DR15		Bit 15 *5

*1 Data memory addresses D30000-D31599 and Channel IO Area addresses 1500-1899 are used as the area for system settings on the External Device side; do not write data from the Display. Refer to your External Device manual for details.

*2 Cannot write to A000-A447.

*3 Write disabled

*4 Up to 13 banks (E0-EC) can be used. One bank is 32768 words. The number of banks differs depending on the CPU unit.

*5 Cannot write while in RUN mode.

NOTE

- Please refer to the GP-Pro EX Reference Manual for system data area.

  Cf. GP-Pro EX Reference Manual "LS Area (Direct Access Method Area)"

- Please refer to the precautions on manual notation for icons in the table.

  ☞"Manual Symbols and Terminology"

5.2 CJ2 Series (Device Address Specification)

This address can be specified as system data area.

Device	Bit Address	Word Address	32 bit	Remarks
Channel IO Area	0000.00-6143.15	0000-6143		*1
Internal Auxiliary Relay	W000.00-W511.15	W000-W511		
Special Auxiliary Relay	A00000.00-A01471.15 A10000.00-A11535.15	A00000-A01471 A10000-A11535		*2
Hold Relay	H0000.00-H0511.15	H0000-H0511		
Timer (Completion Flag)	T0000-T4095	-		*3
Counter (Completion Flag)	C0000-C4095	-		*3
Timer (Preset Value)	-	T0000-T4095		
Counter (Preset Value)	-	C0000-C4095	L/H	
Data Memory	D00000.00-D32767.15	D00000-D32767		*1
EM Area (E0-E18)	E000000.00-E1832767.15	E000000-E1832767		*4
EM Area (Current bank)	EM00000.00-EM32767.15	EM00000-EM32767		
Task Flag Area (Bit)	TKB000-TKB127	-		*3
Task Flag Area (Status)	TK000.00-TK127.07	TK000-TK126		÷2 *3
Index Registers	-	IR00-IR15		Bit31 *5
Data Registers	-	DR00-DR15		Bit15 *5

*1 Data memory addresses D30000-D31599 and Channel IO Area addresses 1500-1899 are used as the area for system settings in the External Device side, do not write data from the Display. Refer to your External Device manual for details.

*2 Cannot write to A000-A447 and A960-A11535.

*3 Write disabled

*4 Up to 25 banks (E0-E18) can be used. One bank is 32768 words. The number of banks differs depending on the CPU unit.

*5 Cannot write while in RUN mode.

NOTE

- Please refer to the GP-Pro EX Reference Manual for system data area.

  Cf. GP-Pro EX Reference Manual "LS Area (Direct Access Method Area)"

- Please refer to the precautions on manual notation for icons in the table.

  ☞"Manual Symbols and Terminology"

5.3 CJ2 Series (Tag Specification)

Data Type		Bit Address	Word Address	32 bit	Remarks
BOOL	Single Tag	<TAGNAME>	-	-	*1 *2
	Array	<TAGNAME>[0]-<TAGNAME>[x-1]			
UINT UINT BCD INT CHANNEL WORD	Single Tag	<TAGNAME>.00-<TAGNAME>.15	<TAGNAME>	L / H	*1 *2
	Array	<TAGNAME>[0].00-<TAGNAME>[x-1].15	<TAGNAME>[0]-<TAGNAME>[x-1]		
UDINT DINT UDINT BCD REAL DWORD	Single Tag	<TAGNAME>.00-<TAGNAME>.31	<TAGNAME>		*1 *2
	Array	<TAGNAME>[0].00-<TAGNAME>[x-1].31	<TAGNAME>[0]-<TAGNAME>[x-1]		
STRING	Single Tag	-	<TAGNAME>	L / H	*1 *3
ULINT LINT ULINT BCD LWORD LREAL NUMBER	Single Tag Array	-	-	-	Tag specification disabled *4

*1 <TAGNAME>: The maximum number of characters for a Tag Name is 255 including delimiters and element number. The maximum number of characters when using D-Script is limited to 54.

Ex.) BOOL type single tag: "BOOLTAG"
BOOL array element: "BOOLARRAY[5]"
INT type single tag: "INTTAG"
WORD type bit address: "WORDTAG.15"
DINT type bit address: "DINTTAG.31"
STRING type word address "STRINGTAG"

*2 The notation of array size is indicated as follows.
When the array size is represented as [x], the notational range is <TAGNAME>[0]-<TAGNAME>[x-1].

*3 STRING: The data in the input string type is UTF-8 encoded with a maximum size of 1986 8-bit characters including a mandatory NULL character (up to 1985 data characters plus one NULL character).

*4 ULINT, LINT, ULINT BCD, LWORD, and LREAL are 4 word data types, so that tags cannot be set up at address input. To display the device allocated to the 4 word data type tag, first register two tags of 2 word data type and divide the address mapped to the 4 word data type tag to map to them.
NUMBER is a data type to indicate constant so that tags cannot be set at address input.

NOTE

- In GP-Pro EX, when the project is set up with a CJ2 Series device configured with [Specification of tag], and you use the [Copy from Another Project] command (available from the [Project] menu's [Utility] command), the address settings in the copied screens may change to "Undefined". Please check the address settings after running the screen copy command.
  However, if the CS/CJ Series EtherNet/IP driver is version 1.11.00 or later, and you are using GP-Pro EX version 2.60 or later, [Copy from Another Project] works without issue when the project is configured with the CS/CJ Series EtherNet/IP driver.
- You may not be able to use some device addresses if you change the number of elements in an array.
- Please refer to the GP-Pro EX Reference Manual for system data area.

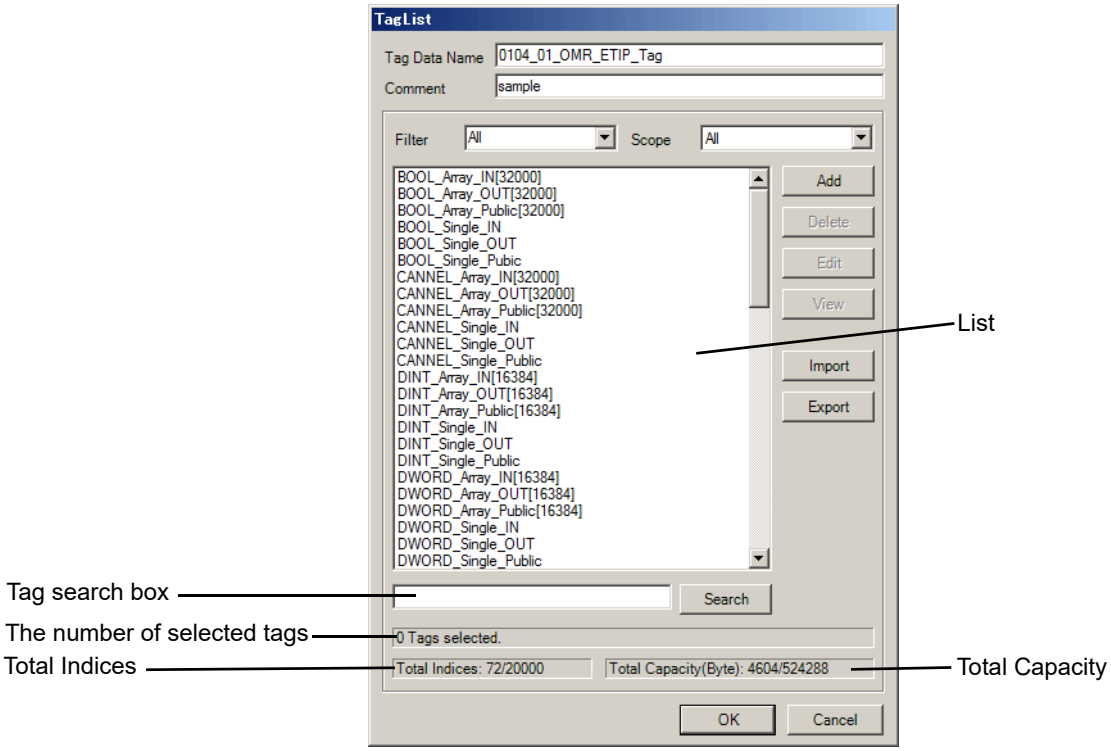
  Cf. GP-Pro EX Reference Manual "LS Area (Direct Access Method Area)"
- Please refer to the precautions on manual notation for icons in the table.

  ☞"Manual Symbols and Terminology"

■ Tag List Dialog Settings

- Tag list

To display the tag list, from GP-Pro EX go to [Individual Device Settings] and click [New] or [Edit].



Setup Items	Setup Description
Tag Data Name	Enter the Tag Data name.
Comment	Enter comments.
Filter	Filters tags displayed in the list. Filters tags using an arbitrary string. To filter by data type, select the data type from the pull down menu. Tags can be filtered by the following conditions from the pull down menu. • All Displays all tags.
Scope	Filters tags displayed in the list. To filter by scope, select a scope from the pull down menu. • All Displays all filtered tags. • Network Variable Displays tags specified as Network Variables.
List	Displays tags registered in the Tag Data. Displays a data type and comment when a cursor is moved over a tag.
Add	Create a new tag. ☞" ■ Creating a new tag" (page 45)
Delete	Deletes a selected tag.
Edit	Edits a selected tag.
View	Displays the configuration of the selected tag.

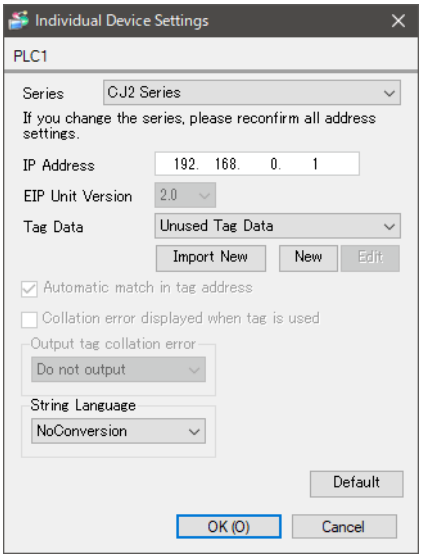
Setup Items	Setup Description
Import	Imports (add) tags from a CXR file. ☞" ◆ Importing from the Tag List dialog box" (page 44)
Export	Exports registered tags to a CXR file. ☞" ◆ Exporting from the Tag List box" (page 45)
Tag search box	Enter the tag name and click [Search] to locate the tag.
The number of selected tags	Displays the number of selected tags.
Total Indices	Displays the total number of tag indices registered in the Tag Data. (Maximum 20000)
Total Capacity	Displays the size of selected and registered tags.

■ Importing Tag Data

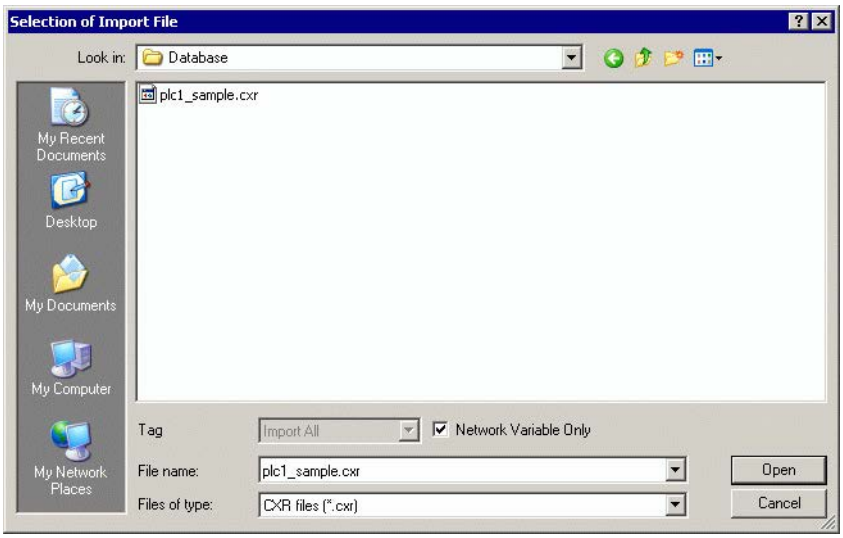
1 Set a tag name and data type using CX-Programmer.

2 Save the configurations in the CXR file.

3 From GP-Pro EX, go to the [Individual Device Settings] dialog box and from [Series], select [CJ2 Series].



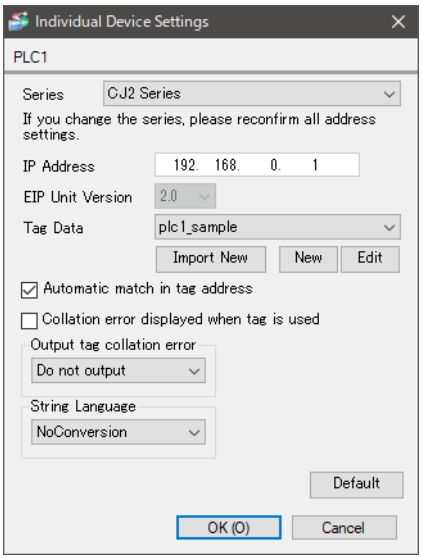
4 Click [Import New]. Select the CXR file to be imported and click [Open].



NOTE

- When the [Network Variable Only] check box is selected, only Network Variable tags saved in the CXR file are imported.

5 Import is executed and Tag Data is generated.



NOTE

- If tags which cannot be imported are stored in the CXR file, the tag data import dialog box to prompt the log output will be displayed.
  ☞" ◆ Log File Format" (page 43)
- For the tag information imported from the CXR file, the total number of tags must stay within 20000 (maximum).
- If the comments in the tag data stored in the CXR file have more than 32 characters, any character after the 32nd will be deleted when the data is saved.
- A one dimensional array with one array element is imported as a non-array tag.

◆ Log File Format

If tags which cannot be imported are stored in the CXR file, the log file of the following format can be output.

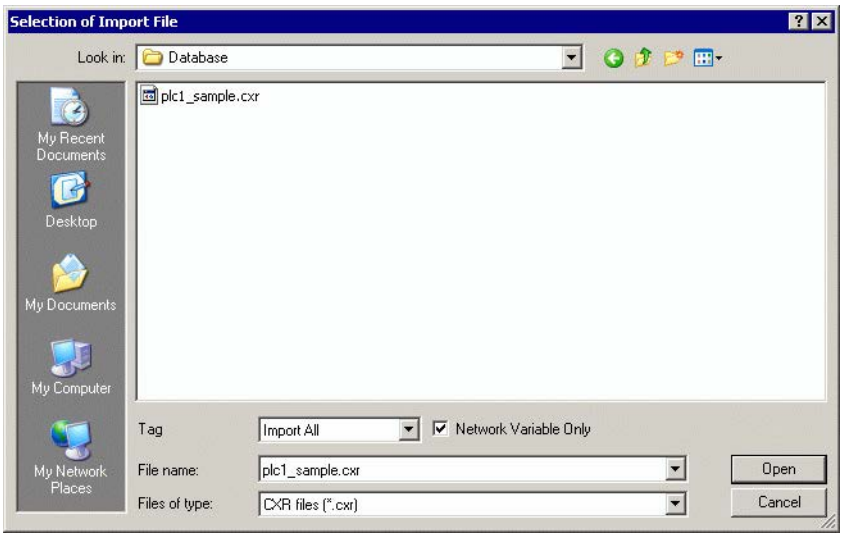
```
Source File Name:
        [CXR file full path]
Storage Information:
        Size: [CXR file size] Bytes
        Last Update Date: [Last update date]
        Comment: [Comment]PLC Type: [PLC type name]
        Tag Count: [The number of registered tags in the CXR file]
Tags imported:
        [The number of imported tags]Tags
Tags changed:
        [The number of changed tags]Tags
Tags not imported:
        [The number of tags failed to import]Tags
Tags changed:
        [Names of changed tags]
                :
                :
Tags not imported:
        [Names of tags failed to be imported]
                :
```

Order	Item	Description
1	Source File Name	Stores CXR file's full path.
2	Size	CXR file size (Byte)
3	Last Update Date	The most recent update data of the CXR file YYYY-MM-DD◆HH:MM(◆ represents a space character)
4	Comment	Comments registered in the CXR file (output 32 characters maximum)
5	PLC Type	Type the name of the External Device registered in the CXR file.
6	Tag Count	The number of tags registered in the CXR file.
7	Tags imported	The number of tags imported from the CXR file.
8	Tags changed*1	Registered tags changed to the CXR file information
9	Tags not imported	The number of tags which failed to import from the CXR file.
10	Tag names changed *1	The list of registered tags that are changed to the CXR file information
11	Tags not imported	The list of tags which failed to import from the CXR file.

*1 Only outputs when import (add) is selected in the tag list dialog box.

◆ Importing from the Tag List dialog box

When importing tags using the Import Button in the Tag List dialog box, the [Tag] pull down menu of the displayed dialog box can be used to narrow the tag data to import.



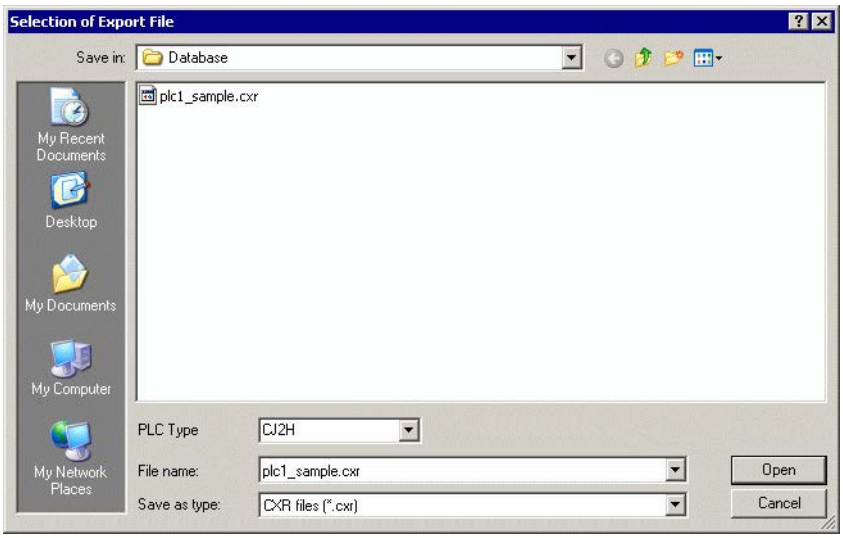
Setup Items	Setup Description
Tag	Select the tag data to import. • Import All Imports all tags stored in the CXR file. Existing tags will be overwritten. New tags will be added. • Import New Only Only new tags stored in the CXR file will be added. • Import Matching Only Changes only the tag data stored in the CXR file which already exists in the current tags.
Network Variable Only	Select this check box only when importing tags specified as Network Variables. Clear the check box when importing tags specified as Global Variables.

NOTE

- If tags which cannot be imported are stored in the CXR file, the tag data import dialog box to prompt the log output will be displayed.
  ☞" ◆ Log File Format" (page 43)
- For the tag information imported from the CXR file, the total number of tags must stay within 20000 (maximum).
- If the comments in the tag data stored in the CXR file have more than 32 characters, any character after the 32nd will be deleted when the data is saved.
- A one dimensional array with one array element is imported as a non-array tag.

◆ Exporting from the Tag List box

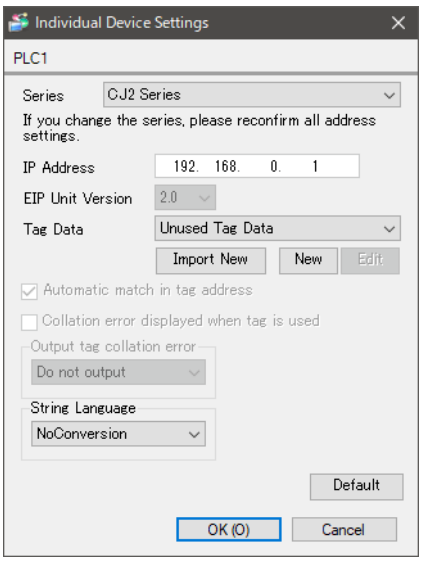
Click [Export] in the Tag List dialog box to display the export dialog box.



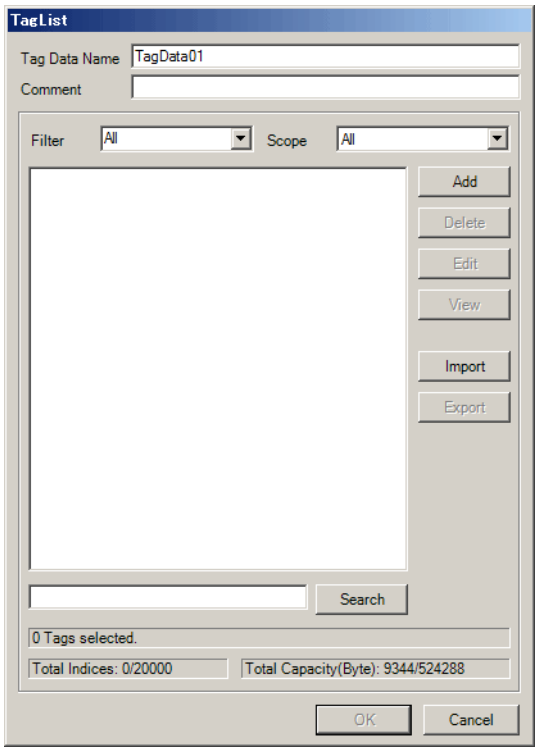
Setup Items	Setup Description
PLC Type	Select the type of External Device.

■ Creating a new tag

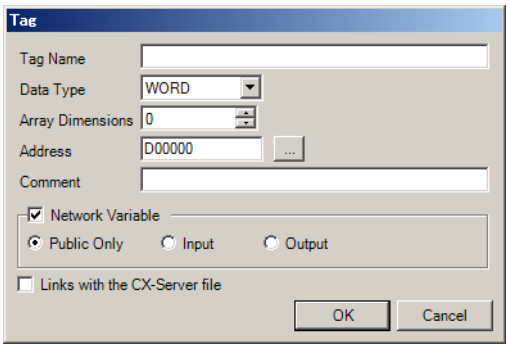
1 Go to the [Individual Device Settings] dialog box from GP-Pro EX and select "CJ2 Series" from [Series].



2 Click [New]. Type the name of the new tag data in [Tag Data Name] and enter any comment in [Comment].



3 Click [Add] to display the [Tag] dialog box.



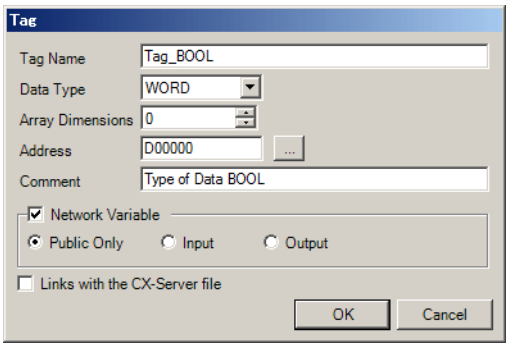
4 Enter the Tag Name, Array Dimensions, Address, and Comment and select the Data Type to be used.

When the [Network Variable] check box is cleared, the tag will be treated as a Global Variable.

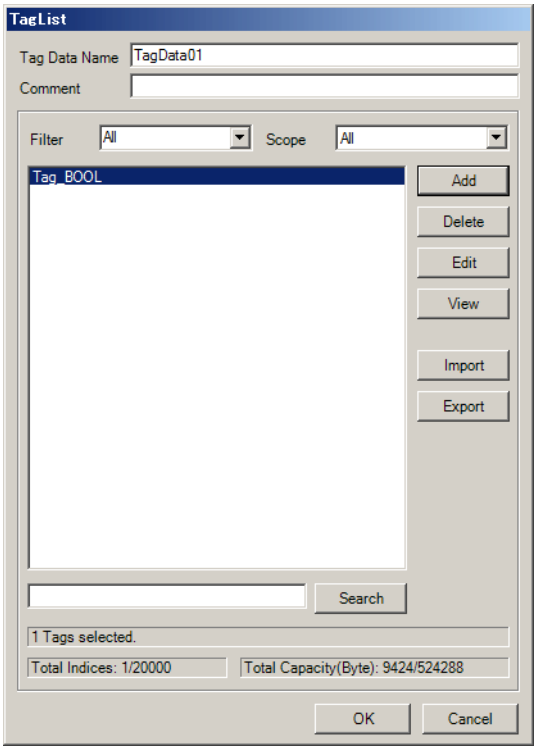
When the [Network Variable] check box is selected, select from Public Only, Input, or Output.

To link the tag to the CX-Server file, select the [Links with the CX-Server file] check box.

☞" ◆ Set Tag Value Limits" (page 48)



Generated controller tags are displayed in the list.



◆ Set Tag Value Limits

1 Tag name input rule

The following input rules apply to tag names.

- A number cannot be used for a first letter.
- You cannot start names with any of the following text:
  LS, USR, SCR, PRT
- A device and address cannot be entered. (Example: D0000)
- !"#$%&'()=-~^\|`@{[+;*:}]<>,.?/ and a space cannot be entered.
- For Network Variable, upper case and lower case characters are not distinguished.
- For Global Variable, upper case and lower case characters are distinguished.
- For Network Variable, "S/ED/EE/EF/E1A/E1B/E1C/E1D/E1E/E1F" cannot be registered.

2 Tag name length limitation

There is a limitation to the length of tag names depending on whether the [Links with the CX-Server file] check box has been checked or cleared.

Variable Type	CX-Server Link	Limitations of Tag name length
Network Variable	ON	Shift-JIS: 32 Byte or less; UTF-8: 48 Byte or less
	OFF	UTF-8: 48 Byte or less
Global Variable	ON	Shift-JIS: 32 Byte or less
	OFF	Shift-JIS: 48 Byte or less

3 STRING Type Limitations

When a user selects the STRING data type, a CX-Server file cannot be linked. In addition, the array dimensions label will be changed to a size. The size can be specified by a value from 1 to 255.

4 Number Type Limitations

When a user selects the NUMBER data type, a Network Variable and array cannot be specified. In addition, the address label will be changed to a value. For values, up to 17 digit integers or decimals can be specified (including minus symbol and decimal points).

5 BOOL Type Limitations

When a user selects the BOOL data type and specifies a Network Variable and array, the starting address has to be set to 0. (Example: A0.0)

6 Address and Array Limitations

Any tag, except the NUMBER type, can specify any address. In addition, when the CX-Server file is not linked, address input is not necessary. In this case, auto address mapping will be used, however this tag cannot be mapped to a part. Also, data type tags in which the device size is 4 words (ULINT/LINT/ULINT BCD/LREAL/LWORD) cannot be mapped to a part.

Any tag, except the STRING and NUMBER type, can specify any array. The maximum array element of the device for tag specification is 32000. Set the number of elements so that the total of specified addresses and element number do not to exceed the maximum value of the specified device.

NOTE

- A one dimensional array with one array element is handled as a non-array tag.

7 Comment Limitation

If the comments have more than 32 characters, any character after the 32nd will be deleted when the data is saved.

5.4 NJ Series (Tag Specification)/ NJ Series (Structured Tag List)

This address can be specified as system data area.

Data Type		Bit Address	Word Address	32 bit	Remarks
BOOL	Single Tag	<TAGNAME>	-		*1 *2 *3 *4
	1D Array	<TAGNAME>[xl]-<TAGNAME>[xh]			
	2D Array	<TAGNAME>[xl,yl]-<TAGNAME>[xh,yh]			
	3D Array	<TAGNAME>[xl,yl,zl]-<TAGNAME>[xh,yh,zh]			
BYTE SINT USINT	Single Tag	<TAGNAME>.0-<TAGNAME>.7	<TAGNAME>	L / H	*1 *2 *3 *4 *5
	1D Array	<TAGNAME>[xl].0-<TAGNAME>[xh].7	<TAGNAME>[xl]-<TAGNAME>[xh]		
	2D Array	<TAGNAME>[xl,yl].0-<TAGNAME>[xh,yh].7	<TAGNAME>[xl,yl]-<TAGNAME>[xh,yh]		
	3D Array	<TAGNAME>[xl,yl,zl].0-<TAGNAME>[xh,yh,zh].7	<TAGNAME>[xl,yl,zl]-<TAGNAME>[xh,yh,zh]		
INT	Single Tag	<TAGNAME>.00-<TAGNAME>.15	<TAGNAME>	L / H	*1 *2 *3 *4 *6
	1D Array	<TAGNAME>[xl].00-<TAGNAME>[xh].15	<TAGNAME>[xl]-<TAGNAME>[xh]		
	2D Array	<TAGNAME>[xl,yl].00-<TAGNAME>[xh,yh].15	<TAGNAME>[xl,yl]-<TAGNAME>[xh,yh]		
	3D Array	<TAGNAME>[xl,yl,zl].00-<TAGNAME>[xh,yh,zh].15	<TAGNAME>[xl,yl,zl]-<TAGNAME>[xh,yh,zh]		
UINT WORD	Single Tag	<TAGNAME>.00-<TAGNAME>.15	<TAGNAME>	L / H	*1 *2 *3 *4 *7
	1D Array	<TAGNAME>[xl].00-<TAGNAME>[xh].15	<TAGNAME>[xl]-<TAGNAME>[xh]		
	2D Array	<TAGNAME>[xl,yl].00-<TAGNAME>[xh,yh].15	<TAGNAME>[xl,yl]-<TAGNAME>[xh,yh]		
	3D Array	<TAGNAME>[xl,yl,zl].00-<TAGNAME>[xh,yh,zh].15	<TAGNAME>[xl,yl,zl]-<TAGNAME>[xh,yh,zh]		

Data Type		Bit Address	Word Address	32 bit	Remarks
REAL LREAL*8	Single Tag	-	<TAGNAME>		*1 *2 *3 *4
	1D Array		<TAGNAME>[xl]- <TAGNAME>[xh]		
	2D Array		<TAGNAME>[xl,yl]- <TAGNAME>[xh,yh]		
	3D Array		<TAGNAME>[xl,yl,zl]- <TAGNAME>[xh,yh,zh]		
DINT UDINT DWORD	Single Tag	<TAGNAME>.00- <TAGNAME>.31	<TAGNAME>		*1 *2 *3 *4
	1D Array	<TAGNAME>[xl].00- <TAGNAME>[xh].31	<TAGNAME>[xl]- <TAGNAME>[xh]		
	2D Array	<TAGNAME>[xl,yl].00- <TAGNAME>[xh,yh].31	<TAGNAME>[xl,yl]- <TAGNAME>[xh,yh]		
	3D Array	<TAGNAME>[xl,yl,zl].00- <TAGNAME>[xh,yh,zh].31	<TAGNAME>[xl,yl,zl]- <TAGNAME>[xh,yh,zh]		
STRING	Single Tag	-	<TAGNAME>		*2 *4 *9

*1 The number of elements in each dimension is displayed as l (minimum number of elements) to h (maximum number of elements).

*2 <TAGNAME>: The Tag Name includes the structure name if structure is required. The maximum number of characters for a Tag Name is 255 including delimiters and element number. The maximum number of characters when using D-Script is limited to 54.

Ex.) BOOL type single tag: "BOOLTAG"
BOOL array element: "BOOLARRAY[5]"
INT type single tag: "INTTAG"
WORD type bit address: "WORDTAG.15"
DINT type bit address: "DINTTAG.31"
STRING type word address "STRINGTAG"

For Tag and Element Names, you can use alphanumeric characters (upper and lower case), the underscore, and multi-byte characters such as those used for Japanese.
The maximum number of single-byte characters is 127.
Numbers and underbars cannot be used for the first character.
The use of two underbars in succession is not possible.
The use of [! " # $ % & ' ( ) = - ~ ^ \ | ` @ { [+ ; * : }] < > , . ? /] and spaces are not possible.
You cannot start names with any of the following text:
LS, USR, SCR, PRT

*3 Array: Number of array element is included in the controller tag information. Since the element number starts from 0, maximum element number is [Element Number-1].

INTARRAY INT[1...16,1...256] can be used in the range of INTARRAY[1-16,1-256].

Array's maximum element number is 65535 including 2D or 3D.

1D Array EX: ARRAY[0...65534](INT) Element number: 65535

2D Array EX: ARRAY[0...1,0...32767](BOOL) Element number: 65534

3D Array EX: ARRAY[0...1,0...1,16383](DINT) Element number: 65532

*4 The following data types are supported only when [NJ Series (Structured Tag List)] is selected in GP-Pro EX:
Array (ARRAY)
Structure (STRUCT)
Array of Structure (ARRAY OF STRUCT)

*5 BYTE, SINT, and USINT: Handled as 8-bit devices in the External Device. However, only when “NJ Series” is selected in GP-Pro EX, 16-bit devices in GP-Pro EX. Therefore, 0 (zero) is set to the upper byte. When writing data to BYTE, SINT, or USINT devices from the Display, only the lower byte is written. The upper byte is not written. Therefore, BYTE, SINT, and USINT cannot be used for string purposes, because the upper byte is not available. When [NJ Series (Structured Tag List)] is selected, this limitation does not apply because the data is handled as 8-bit devices, the same as the External Device.

*6 The system data area is initially set up with 16 words of items. If you set up less than 16 words of items, after allocating a 16 word or larger array of tags in the system data area, select only the necessary items.

*7 When [NJ Series (Structured Tag List)] is selected, WORD and UINT tags can also be used as the System Area Start Address.

*8 LREAL: 64-bit register on the External Device, but GP-Pro EX handles it as 32-bit Float data.

*9 STRING: Only one dimensional arrays are supported. The data in the array is UTF-8 encoded with a maximum size of 1986 8-bit characters including a mandatory NULL character (up to 1985 data characters plus one NULL character).

NOTE

- You may not be able to use some device addresses if you change the number of elements or number of dimensions in an array.
- Please refer to the GP-Pro EX Reference Manual for system data area.

  Cf. GP-Pro EX Reference Manual "LS Area (Direct Access Method Area)"

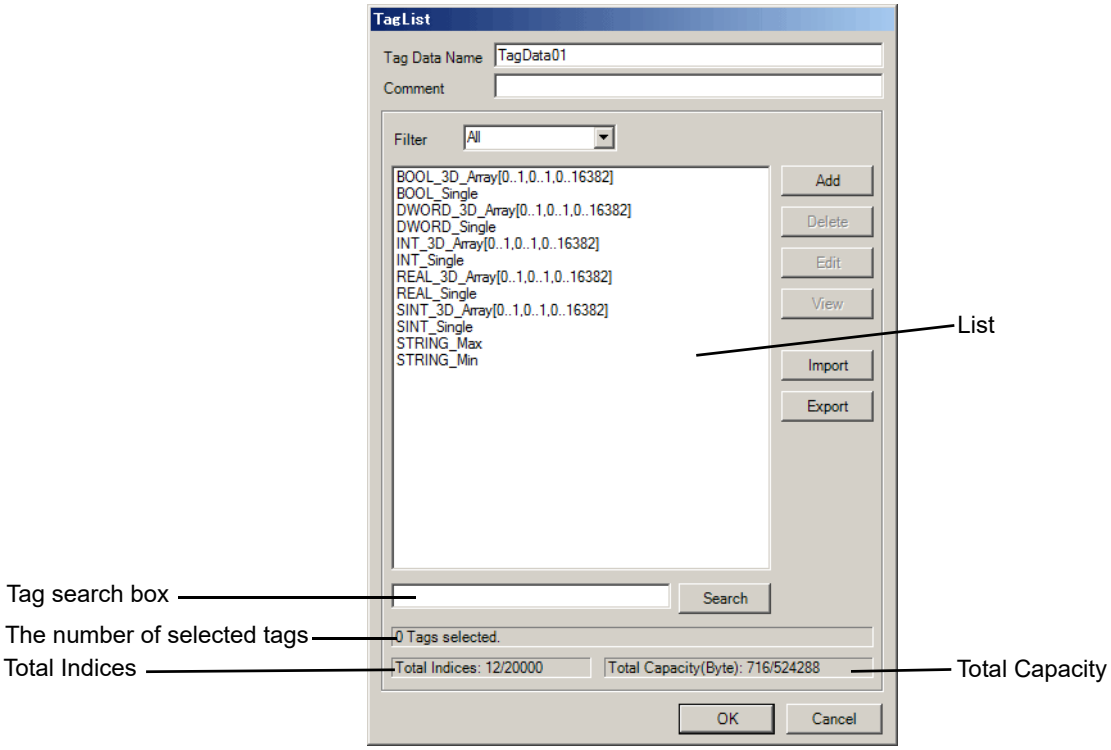
- Please refer to the precautions on manual notation for icons in the table.

  ☞"Manual Symbols and Terminology"

■ Tag List Dialog Settings

- Tag list

To display the tag list, from GP-Pro EX go to [Individual Device Settings] and click [New] or [Edit].



Setup Items	Setup Description
Tag Data Name	Enter the Tag Data name.
Comment	Enter comments.
Filter	Filters tags displayed in the list. Filters tags using an arbitrary string. To filter by data type, select the data type from the pull down menu. Tags can be filtered by the following conditions from the pull down menu. • All Displays all tags.
List	Displays tags registered in the Tag Data. Displays a data type and comment when a cursor is moved over a tag.
Add	Create a new tag. ☞" ■ Creating a new tag" (page 71)
Delete	Deletes a selected tag.
Edit	Edits a selected tag.
View	Displays the configuration of the selected tag.
Import	Imports (add) tags from a Clipboard. ☞" ■ Importing Tag Data for “NJ Series (Structured Tag List)” — “Import From File”" (page 58)
Export	Exports the tag to the clipboard. Paste it to a text editor or other software to review its contents.

Setup Items	Setup Description
Tag search box	Enter the tag name and click [Search] to locate the tag.
The number of selected tags	Displays the number of selected tags.
Total Indices	Displays the total number of tag indices registered in the Tag Data. (Maximum 20000)
Total Capacity	Displays the size of selected and registered tags.

■ Importing Tag Data for “NJ Series (Structured Tag List)” — “Paste Tags”

This section describes the procedure for selecting “NJ Series (Structured Tag List)” in GP-Pro EX, copying the tag list from a project created in Sysmac Studio, and pasting it (importing) into the tag list in GP-Pro EX via the clipboard.

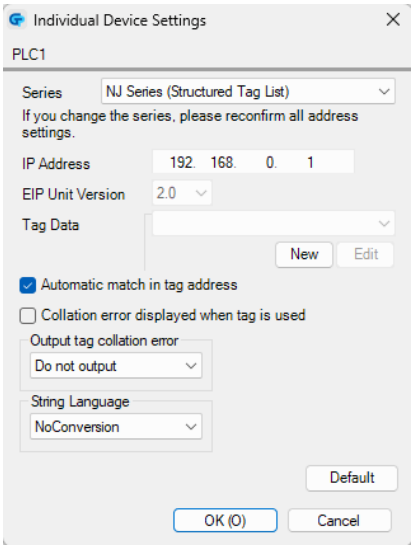
NOTE

- To reuse tag data by importing a tag definition file (XML file) used in another GP-Pro EX project, refer to " ■ Importing Tag Data for “NJ Series (Structured Tag List)” — “Import From File”" (page 58).
- For the procedure to import tag data when “NJ Series” is selected in [Series], refer to " ■ Importing Tag Data for “NJ Series”" (page 62).

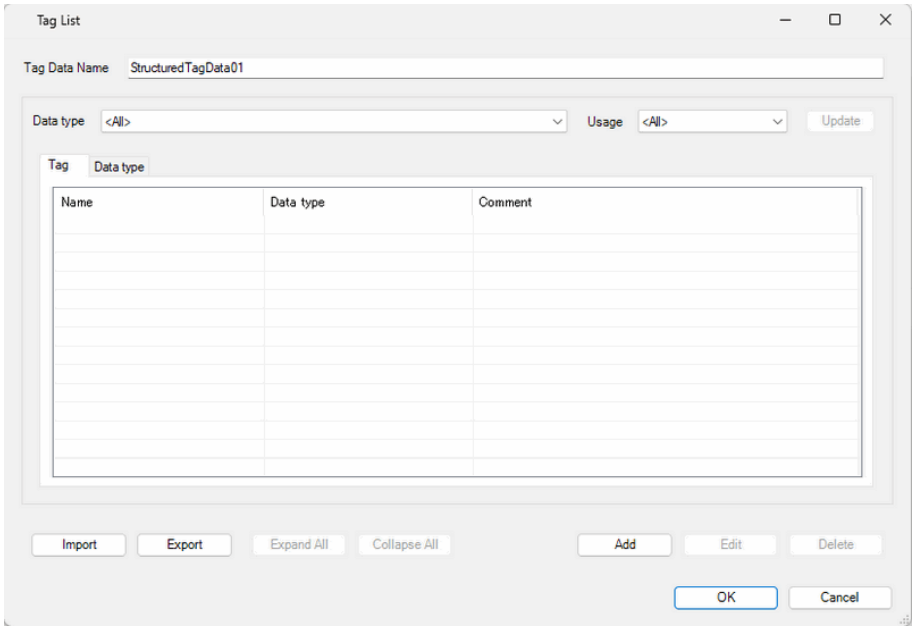
1 Set a tag name and data type using Sysmac Studio.

2 Select [Export Global Variables]-[CX-Designer] from the [Tool] menu. The tag list is copied to the clip board.

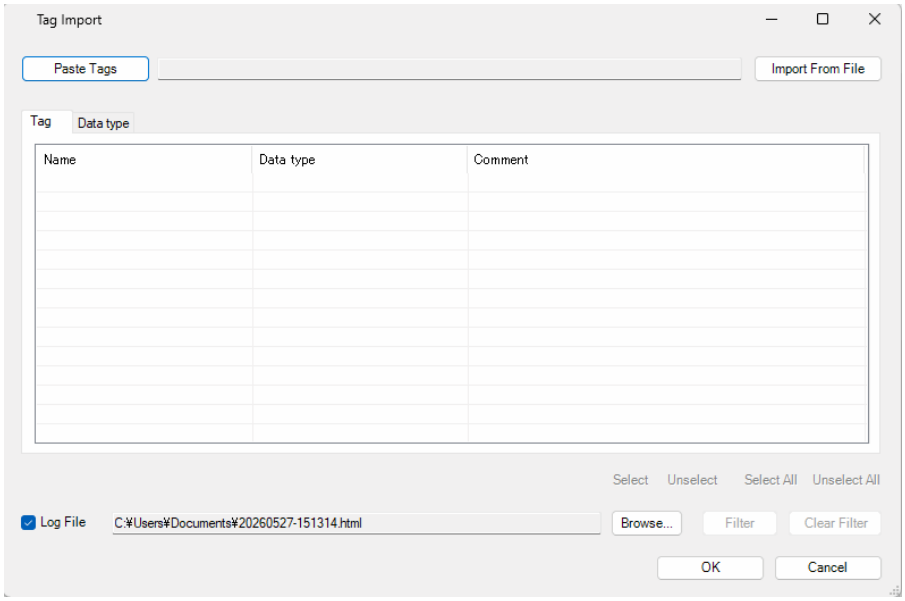
3 From GP-Pro EX, go to the [Individual Device Settings] dialog box and from [Series], select [NJ Series (Structured Tag List)].



4 Click [New] under [Tag Data] to display the [Tag List], and then click [Import].

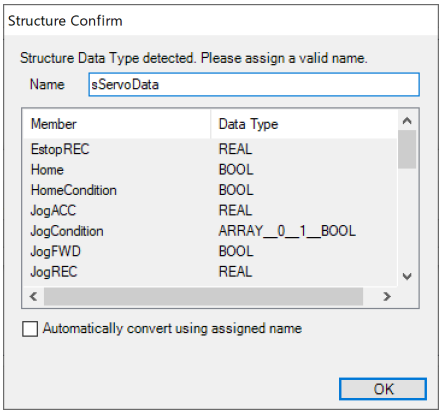


5 Click [Paste Tags], and paste the tag which is exported to the clipboard.



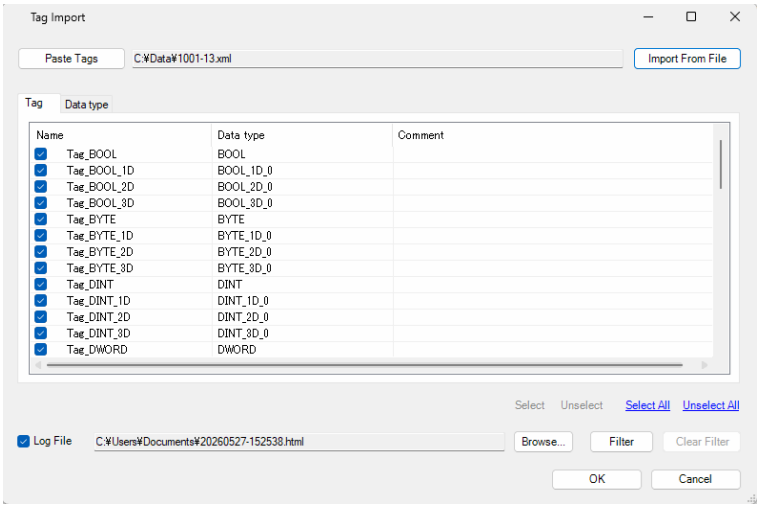
NOTE

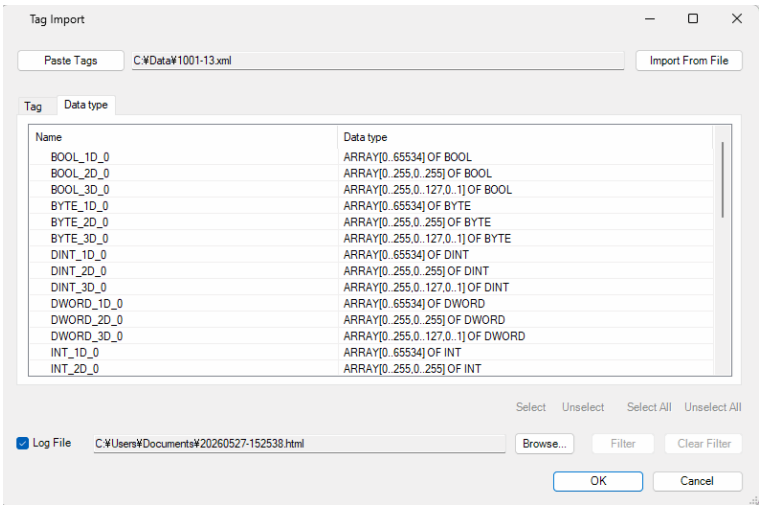
- If the tag data includes structures, the [Structure Confirm] dialog box is displayed. When the [Automatically convert using assigned name] option is enabled, structure names are temporarily assigned so you can register them all in one step. If the option is not enabled, enter structure names individually and click [OK] to register them.



- After importing tags, the structure name cannot be changed. If a change is required, the tags must be re-imported. However, if the tags are not used, the structure name can be changed even after import.

6 The tag data is displayed in two tabs: [Tag] and [Data Type]. Select the tags you want to import by selecting them in the [Tag] tab, and then click [OK] to complete the import.





NOTE

- If a tag data comment contains more than 32 characters, any characters beyond the 32nd will be deleted during import.
- You cannot import the system-defined tags and structures as the ladder software.
- If tags which cannot be imported are stored in the tag list, the tag data import dialog box to prompt the log output will be displayed.
  ☞" ◆ Log File Format" (page 70)
- For the tag information imported from the tag list, the total number of tags must stay within 20000 (maximum).
- A one dimensional array with one array element is imported as a non-array tag.
- The first dimension in a multidimensional array definition must be 2 or greater.

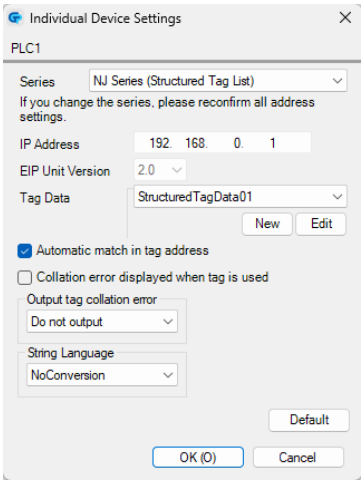
■ Importing Tag Data for “NJ Series (Structured Tag List)” — “Import From File”

This section explains the procedure for exporting an existing tag definition file (XML file) created in GP-Pro EX with “NJ Series (Structured Tag List)” selected, and importing it into another project file with “NJ Series (Structured Tag List)” selected.

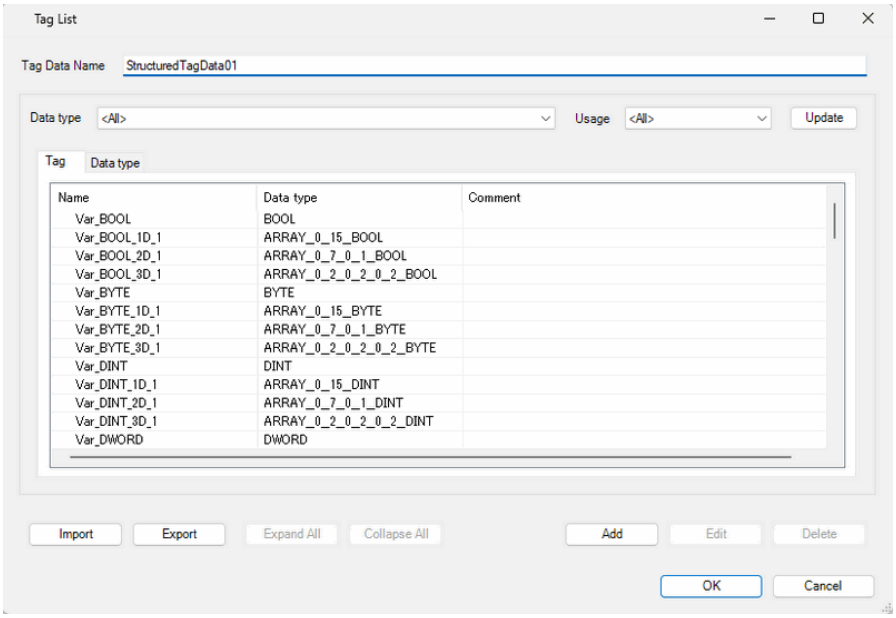
NOTE

- For the procedure to copy the tag list from a project created in Sysmac Studio and paste (import) it into the tag list in GP-Pro EX via the clipboard, refer to " ■ Importing Tag Data for “NJ Series (Structured Tag List)” — “Paste Tags”" (page 54).
- For the procedure to import tag data when “NJ Series” is selected in [Series], refer to " ■ Importing Tag Data for “NJ Series”" (page 62)

1 In GP-Pro EX, open the [Individual Device Settings] dialog box, select [NJ Series (Structured Tag List)] from [Series], and then select the exported tag definition file in [Tag Data].

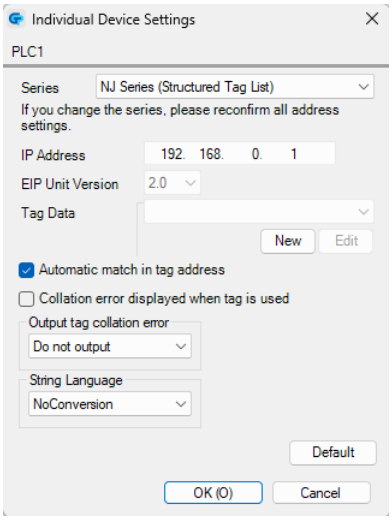


2 Click [Edit] under [Tag Data] to display the [Tag List], and then click [Export].

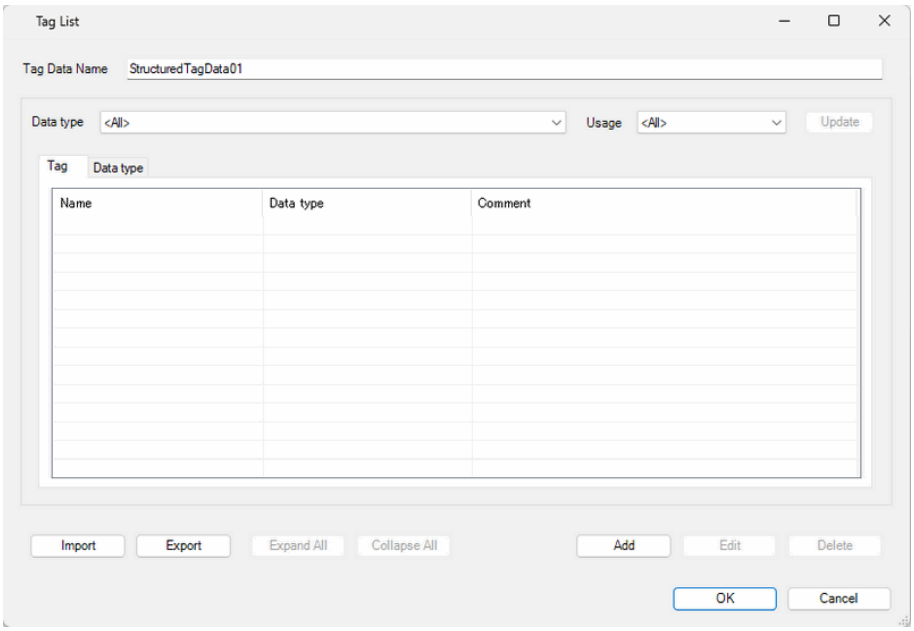


3 Select the destination for saving the tag data, enter a file name, and click [Save] to save the tag definition file (XML file). The [Tag List] dialog box will be displayed to notify that the export has been completed successfully. Click [OK] to close the dialog box.

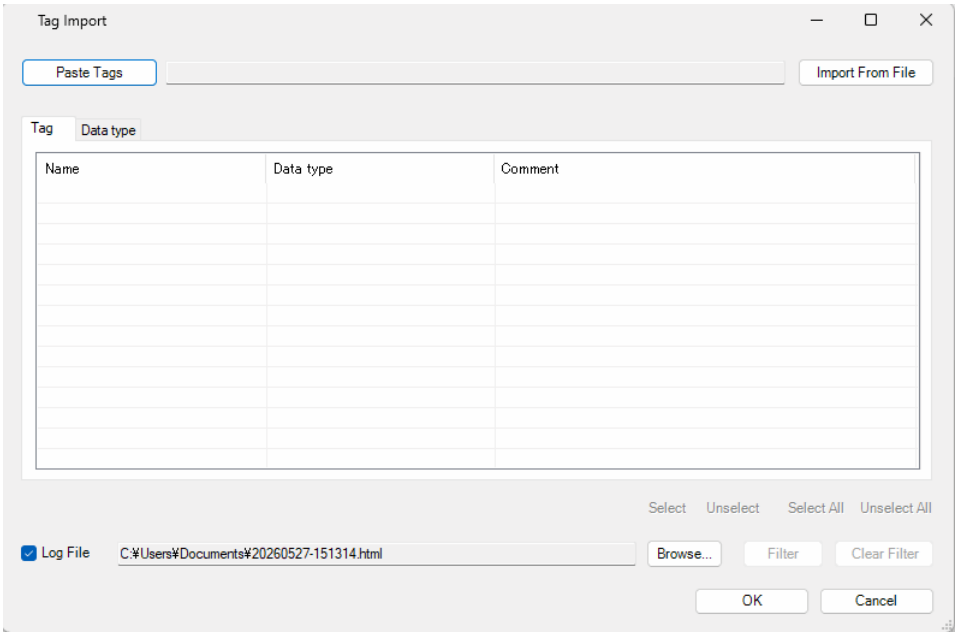
4 Next, import the exported tag definition file (XML file) into the GP-Pro EX project where it will be used. In GP-Pro EX, display the [Individual Device Settings] dialog box and select [NJ Series (Structured Tag List)] from [Series].



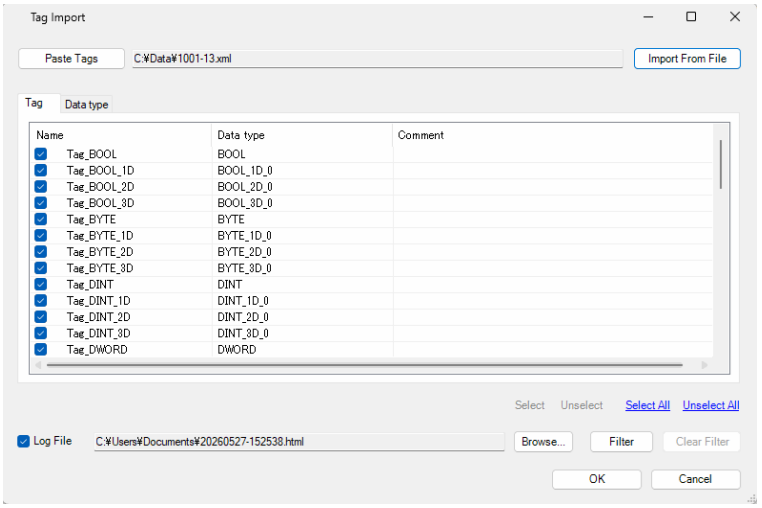
5 Click [New] under [Tag Data] to display the [Tag List], and then click [Import].

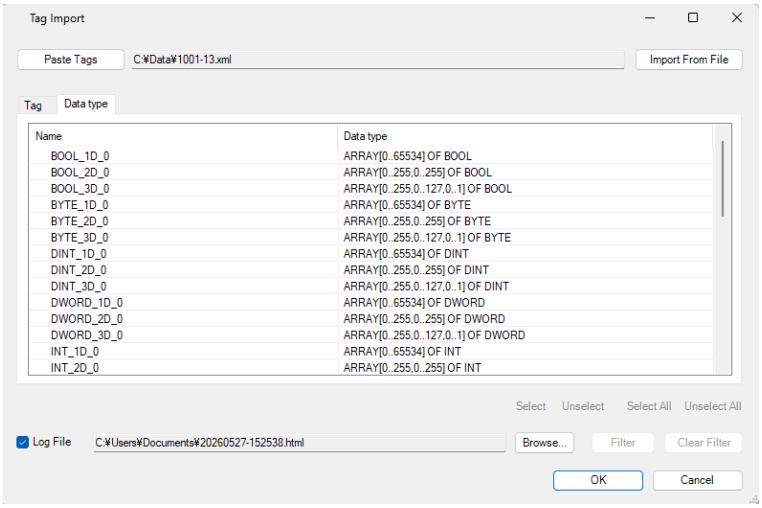


6 Click [Import From File], select the tag data (XML file) exported in Step 3, and then click [Open].



7 The tag data is displayed in two tabs: [Tag] and [Data Type]. Select the tags you want to import by selecting them in the [Tag] tab, and then click [OK] to complete the import.





8 After the import is completed, the import results are displayed.

■ Importing Tag Data for “NJ Series”

This section describes the procedure for selecting “NJ Series” in GP-Pro EX, copying the tag list from a project created in Sysmac Studio, and pasting it (importing) into the tag list in GP-Pro EX via the clipboard.

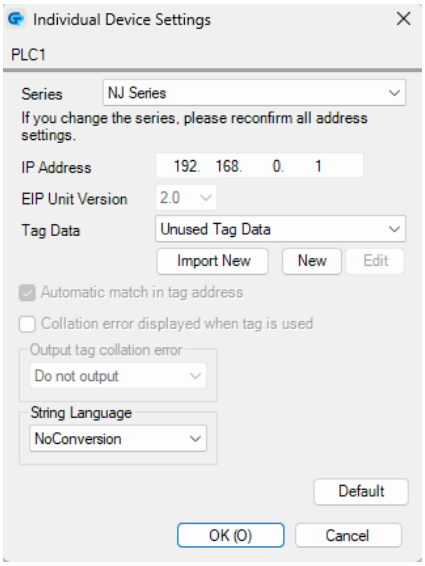
NOTE

- When prioritizing compatibility with existing project files created with “NJ Series” in GP-Pro EX, follow this procedure to import the data. To switch to [NJ Series (Structured Tag List)], refer to " ■ Switching from “NJ Series” to “NJ Series (Structured Tag List)”" (page 65).

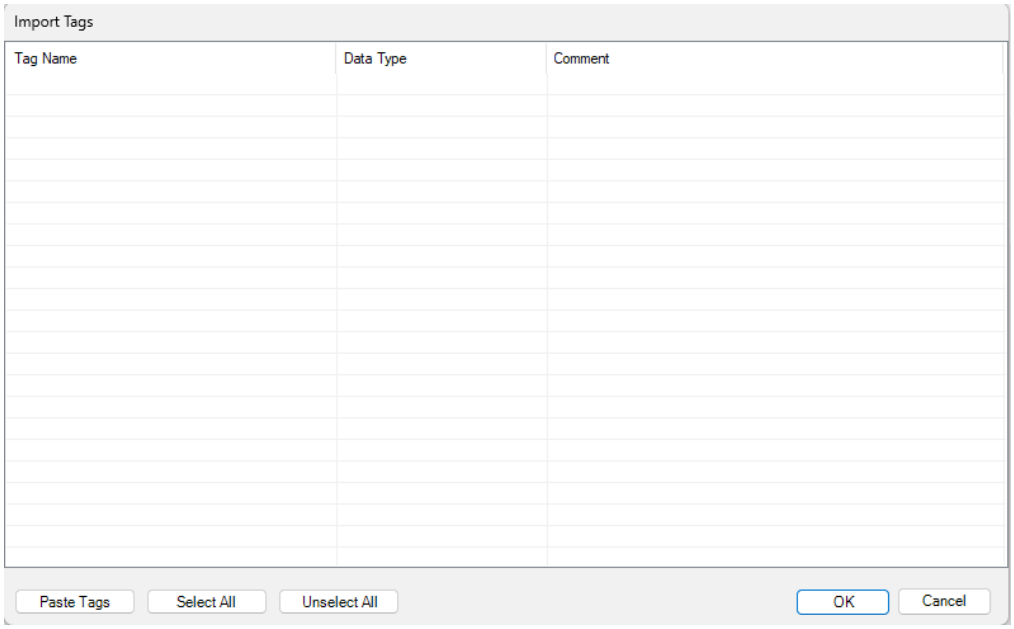
1 Set a tag name and data type using Sysmac Studio.

2 Select [Export Global Variables]-[CX-Designer] from the [Tool] menu. The tag list is copied to the clip board.

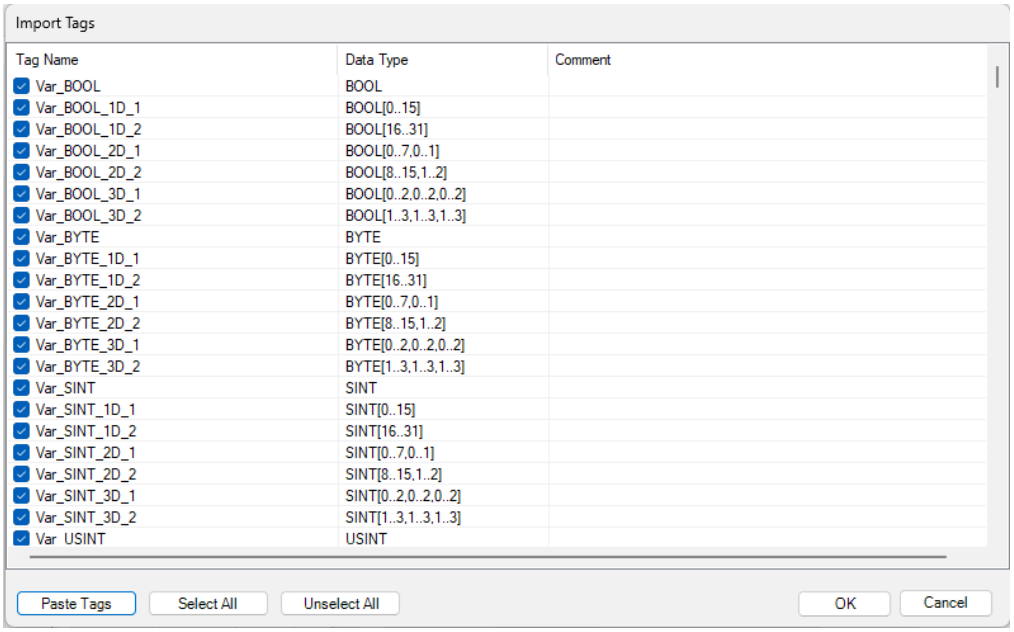
3 From GP-Pro EX, go to the [Individual Device Settings] dialog box and from [Series], select [NJ Series].



4 Click [Import New] to display the [Import Tags].



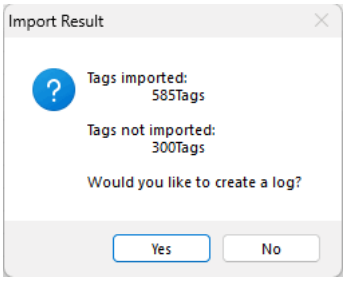
5 Click [Paste Tags], and paste the tag which is exported to the clipboard.



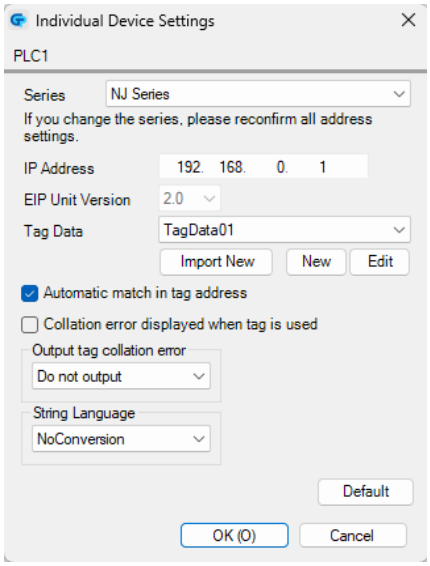
NOTE

- If a tag data comment contains more than 32 characters, any characters beyond the 32nd will be deleted during import.
- You cannot import the system-defined tags and structures as the ladder software.
- If tags which cannot be imported are stored in the tag list, the tag data import dialog box to prompt the log output will be displayed.
  ☞" ◆ Log File Format" (page 70)
- For the tag information imported from the tag list, the total number of tags must stay within 20000 (maximum).
- A one dimensional array with one array element is imported as a non-array tag.
- The first dimension in a multidimensional array definition must be 2 or greater.

6 Check the tags to be imported and click [OK] to complete the import. The numbers of successfully imported and failed tags are then displayed. To save the details of the results to a log file, click [Yes]; if not, click [No].



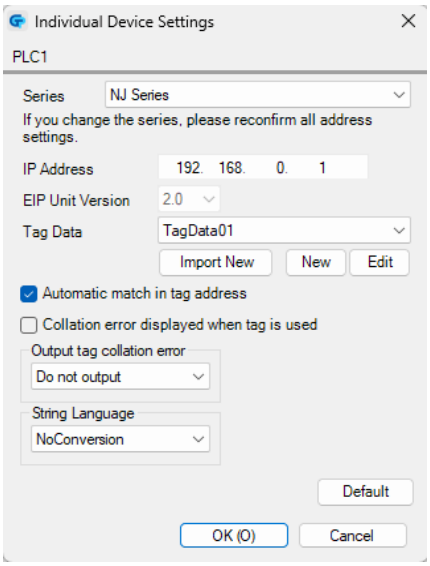
7 The imported tag data is registered as “Tag Data 01” in [Tag Data] within [Individual Device Settings]. Click [OK] to complete the import process.



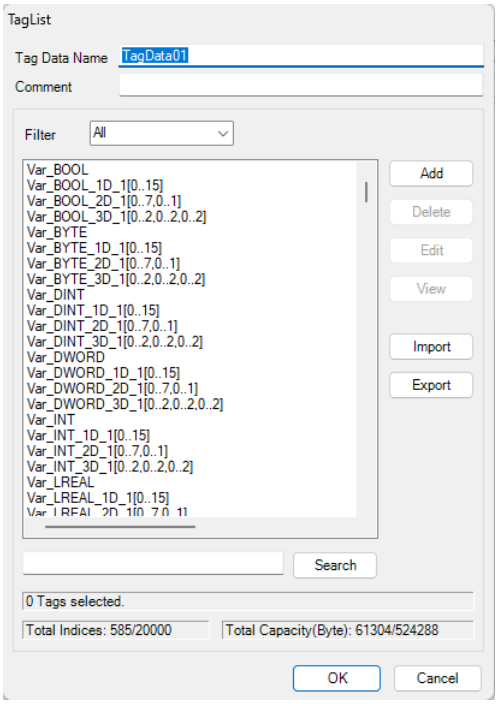
■ Switching from “NJ Series” to “NJ Series (Structured Tag List)”

This section describes the procedure for switching from “NJ Series” to “NJ Series (Structured Tag List)” by exporting the tag list from “NJ Series” and pasting (importing) it into the tag list of “NJ Series (Structured Tag List)”.

1 In GP-Pro EX, open the [Individual Device Settings] dialog box and select “NJ Series” from [Series]. Under [Tag Data], select the tag data registered in Step 7 of " ■ Importing Tag Data for “NJ Series”" (page 62) (e.g., “Tag Data 01”), and then click [Edit].

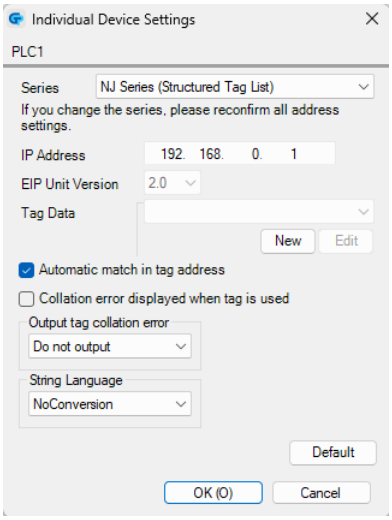


2 Click [Export] under [Tag List].

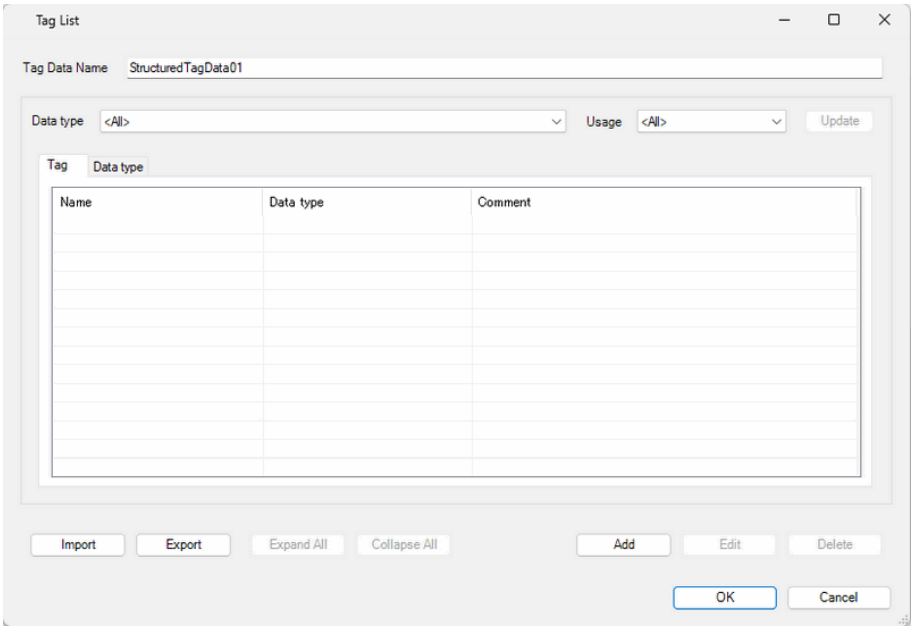


3 The tag list for [NJ Series] is copied to the clipboard. Click [OK]. The [Tag Export] dialog box appears. Click [OK] to close it.

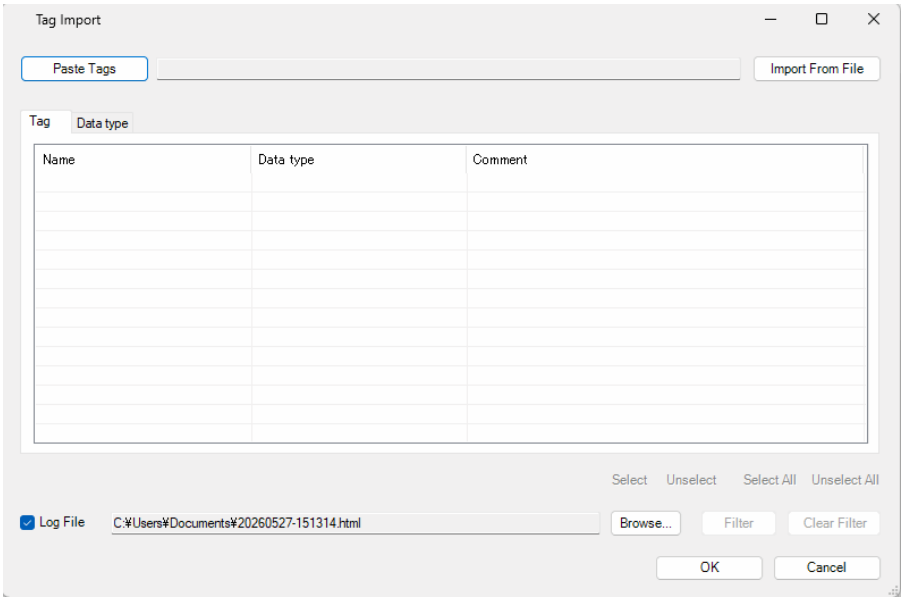
4 Display the [Individual Device Settings] dialog box and select [NJ Series (Structured Tag List)] from [Series].



5 Click [New] under [Tag Data] to display the [Tag List], and then click [Import].

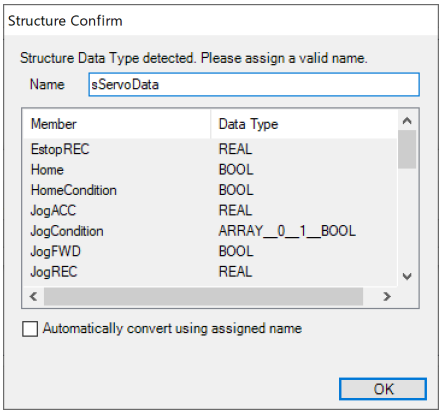


6 Click [Paste Tags], and paste the tag which is exported to the clipboard.



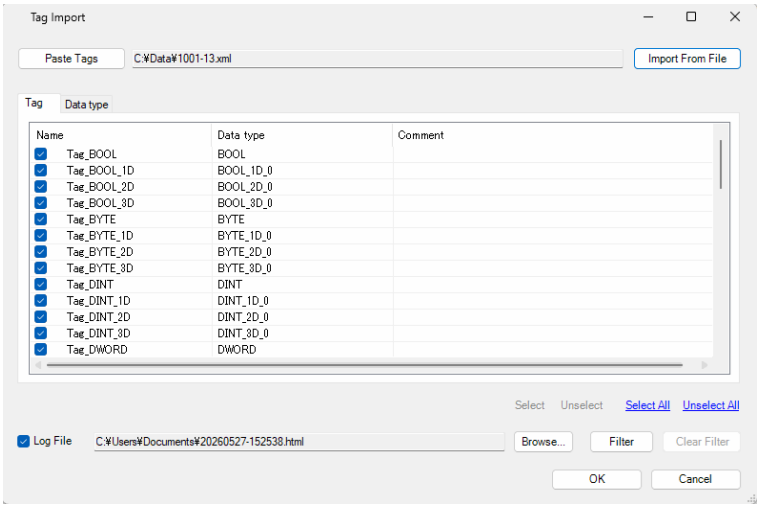
NOTE

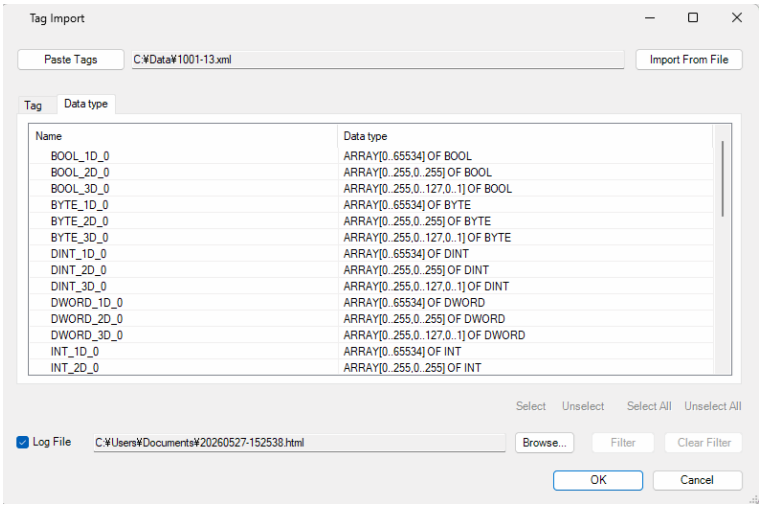
- If the tag data includes structures, the [Structure Confirm] dialog box is displayed. When the [Automatically convert using assigned name] option is enabled, structure names are temporarily assigned so you can register them all in one step. If the option is not enabled, enter structure names individually and click [OK] to register them.



- After importing tags, the structure name cannot be changed. If a change is required, the tags must be re-imported. However, if the tags are not used, the structure name can be changed even after import.

7 The tag data is displayed in two tabs: [Tag] and [Data Type]. Select the tags you want to import by selecting them in the [Tag] tab, and then click [OK] to complete the import.

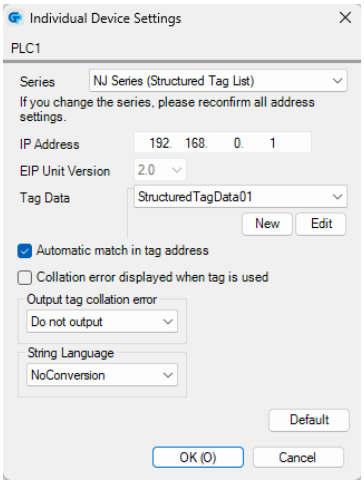




NOTE

- If a tag data comment contains more than 32 characters, any characters beyond the 32nd will be deleted during import.
- You cannot import the system-defined tags and structures as the ladder software.
- If tags which cannot be imported are stored in the tag list, the tag data import dialog box to prompt the log output will be displayed.
  ☞" ◆ Log File Format" (page 70)
- For the tag information imported from the tag list, the total number of tags must stay within 20000 (maximum).
- A one dimensional array with one array element is imported as a non-array tag.
- The first dimension in a multidimensional array definition must be 2 or greater.

8 The imported tag data is registered as “StructuredTagData01” in [Tag Data] within [Individual Device Settings]. Click [OK] to complete the import process.



NOTE

- When switching from “NJ Series” to “NJ Series (Structured Tag List),” please note the following two points.
  a) When changing from [NJ Series] to [NJ Series (Structured Tag List)], BYTE, SINT, and USINT are handled as 8-bit data instead of 16-bit data.
  For example, if variables of type BYTE, SINT, or USINT were displayed in a Data Display using a 16-bit data format, after the change, the device address size will be incorrect. Therefore, the Data Display must be modified so that the data format uses 8-bit data.
  P ay special attention to this behavior, especially when arrays are used, as the data of two addresses will display after the change.
  b) After importing, if you click [OK] in the [Individual Device Settings] dialog box without any valid tag data, all the addresses will be set to Undefined (unrecognized). Before clicking [OK] in the [Individual Device Settings] dialog box, ensure the same tag list as the [NJ Series] (the Global Variable List from Sysmac Studio) was imported.
  ☞"5.4 NJ Series (Tag Specification)/ NJ Series (Structured Tag List)" (page 49)

◆ Log File Format

If tags which cannot be imported are stored in the tag list, the log file of the following format can be output.

```
Source File Name:
        [Error Log file name]

Storage Information:
        Size: 0Bytes
        Last Update Date: [Last update date]
        Comment:
        PLC Type: NJ Series
        Tag Count: [The number of registered tags]

Tags imported:
        [The number of imported tags]Tags

Tags changed:
        [The number of changed tags]Tags

Tags not imported:
        [The number of tags failed to import]Tags

Tags changed:
        [Names of changed tags]
                :
                :

Tags not imported:
        [Names of tags failed to be imported]
                :
```

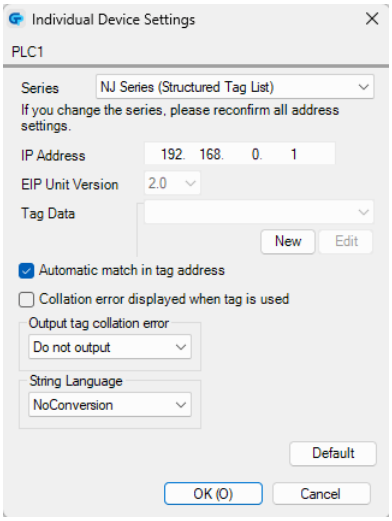
Order	Item	Description
1	Source File Name	Name of the log file.
2	Size	Not used (0 bytes).
3	Last Update Date	The most recent update data of the tag list YYYY-MM-DD◆HH:MM(◆ represents a space character)
4	Comment	Not used.
5	PLC Type	Fixed to NJ Series.
6	Tag Count	The number of tags registered in the tag list.
7	Tags imported	The number of tags imported from the tag list.
8	Tags changed*1	Registered tags changed to the tag list information
9	Tags not imported	The number of tags which failed to import from the tag list.
10	Tag changed *1	The list of registered tags that are changed to the tag list information
11	Tags not imported	The list of tags which failed to import from the tag list.

*1 Only outputs when import (add) is selected in the tag list dialog box.

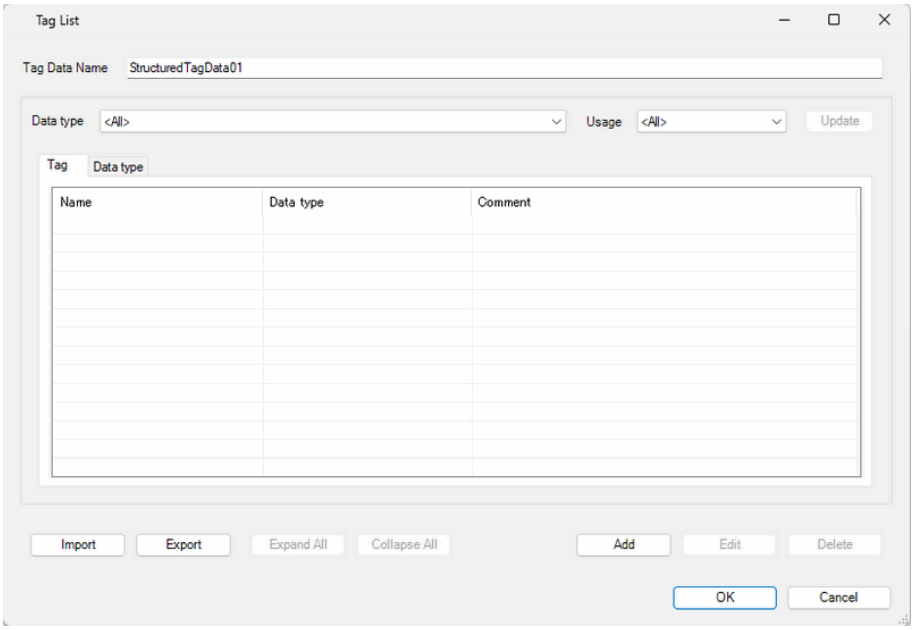
■ Creating a new tag

◆ When creating new tags with “NJ Series (Structured Tag List)” selected

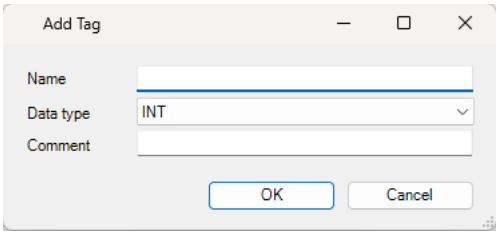
1 Go to the [Individual Device Settings] dialog box from GP-Pro EX and select "NJ Series (Structured Tag List)" from [Series].



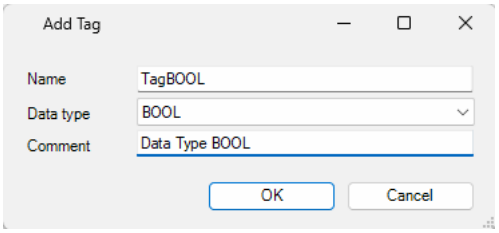
2 Click [New]. Type the name of the new tag data in [Tag Data Name] and enter any comment in [Comment].



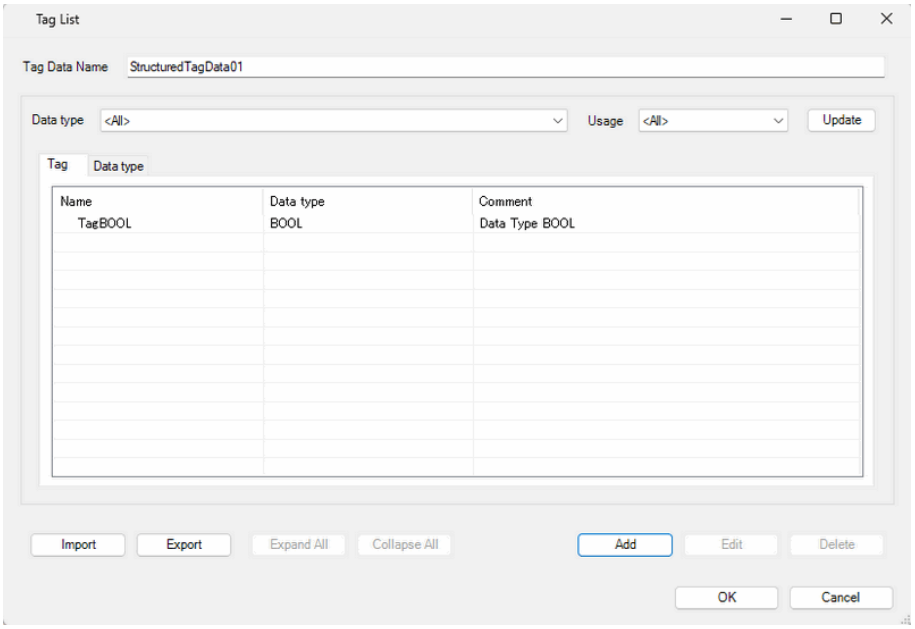
3 Click [Add] to display the [Tag] dialog box.



4 Enter the Tag Name, Array Dimensions, and Comment and select the Data Type to be used.



5 Generated controller tags are displayed in the list.



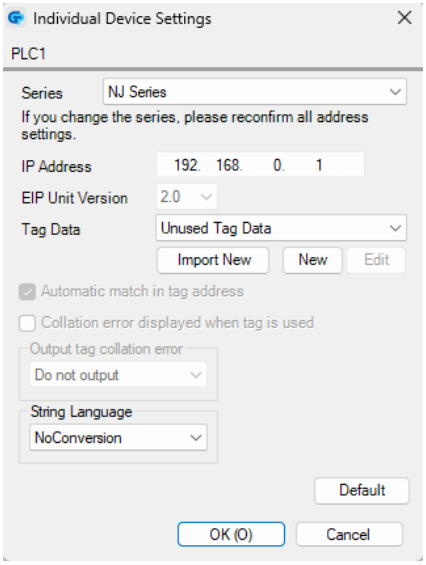
NOTE

- In GP-Pro EX, you cannot create the same system-defined tags and structures as the ladder software.
- In GP-Pro EX, you cannot create the same user-defined structure set up as a global variable as the ladder software. However, you can import such a structure into GP-Pro EX.

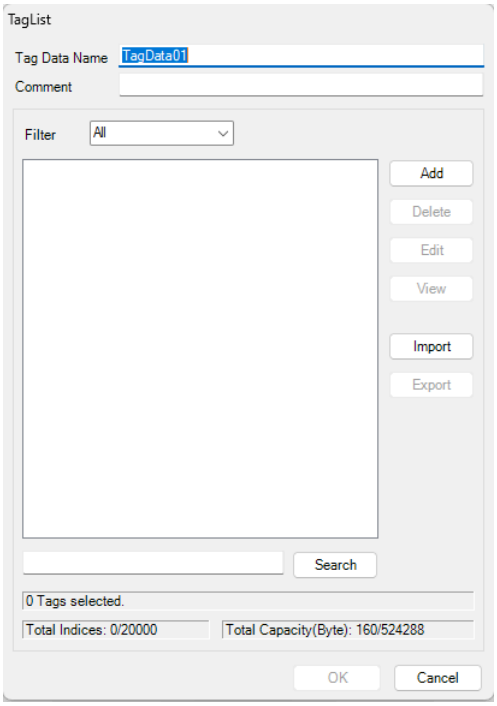
☞" ■ Importing Tag Data for “NJ Series (Structured Tag List)” — “Paste Tags”" (page 54)
☞" ■ Importing Tag Data for “NJ Series (Structured Tag List)” — “Import From File”" (page 58)

◆ When creating new tags with “NJ Series” selected

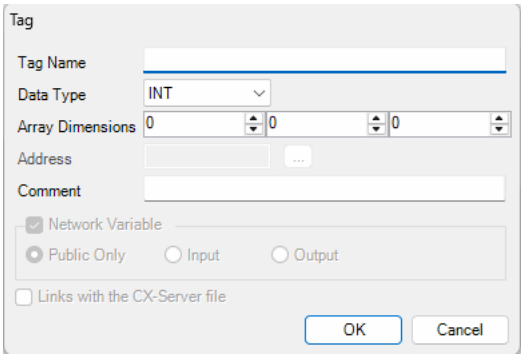
1 Go to the [Individual Device Settings] dialog box from GP-Pro EX and select "NJ Series" from [Series].



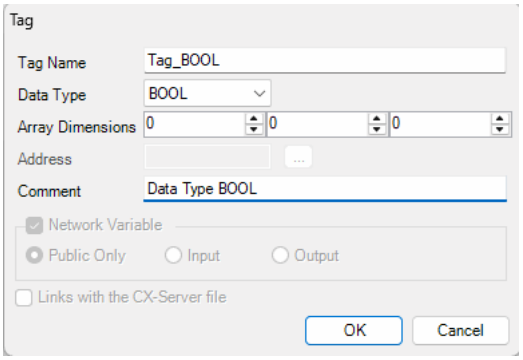
2 Click [New]. Type the name of the new tag data in [Tag Data Name] and enter any comment in [Comment].



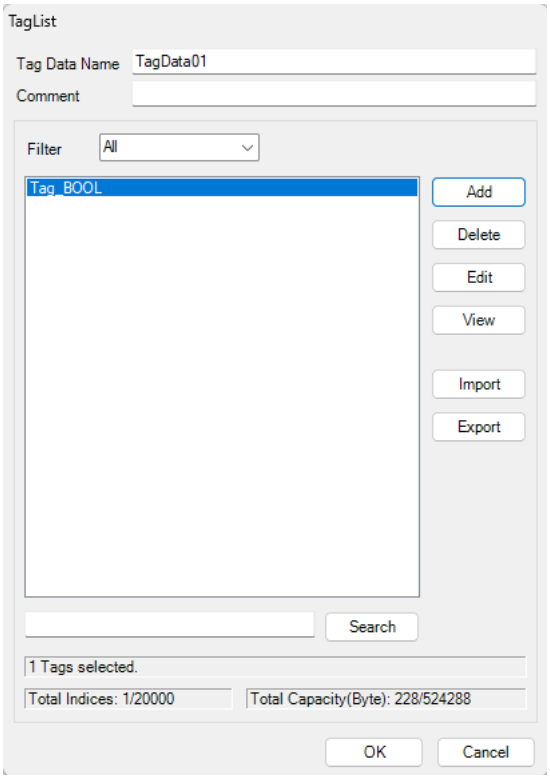
3 Click [Add] to display the [Tag] dialog box.



4 Enter the Tag Name, Array Dimensions, and Comment and select the Data Type to be used.



5 Generated controller tags are displayed in the list.



NOTE

- In GP-Pro EX, you cannot create the same system-defined tags and structures as the ladder software.
- In GP-Pro EX, you cannot create the same user-defined structure set up as a global variable as the ladder software. However, you can import such a structure into GP-Pro EX.

☞" ■ Importing Tag Data for “NJ Series”" (page 62)

5.5 NX1P / NX1 / NX7 / NX502 Series (Tag Specification)

This address can be specified as system data area.

Data Type		Bit Address	Word Address	32 bit	Remarks
BOOL	Single Tag	<TAGNAME>	-		*1 *2 *3
	1D Array	<TAGNAME>[xl]-<TAGNAME>[xh]			
	2D Array	<TAGNAME>[xl,yl]-<TAGNAME>[xh,yh]			
	3D Array	<TAGNAME>[xl,yl,zl]-<TAGNAME>[xh,yh,zh]			
BYTE SINT USINT	Single Tag	<TAGNAME>.0-<TAGNAME>.7	<TAGNAME>	L / H	*1 *2 *3 *4
	1D Array	<TAGNAME>[xl].0-<TAGNAME>[xh].7	<TAGNAME>[xl]-<TAGNAME>[xh]		
	2D Array	<TAGNAME>[xl,yl].0-<TAGNAME>[xh,yh].7	<TAGNAME>[xl,yl]-<TAGNAME>[xh,yh]		
	3D Array	<TAGNAME>[xl,yl,zl].0-<TAGNAME>[xh,yh,zh].7	<TAGNAME>[xl,yl,zl]-<TAGNAME>[xh,yh,zh]		
INT	Single Tag	<TAGNAME>.00-<TAGNAME>.15	<TAGNAME>	L / H	*1 *2 *3 *5
	1D Array	<TAGNAME>[xl].00-<TAGNAME>[xh].15	<TAGNAME>[xl]-<TAGNAME>[xh]		
	2D Array	<TAGNAME>[xl,yl].00-<TAGNAME>[xh,yh].15	<TAGNAME>[xl,yl]-<TAGNAME>[xh,yh]		
	3D Array	<TAGNAME>[xl,yl,zl].00-<TAGNAME>[xh,yh,zh].15	<TAGNAME>[xl,yl,zl]-<TAGNAME>[xh,yh,zh]		
UINT WORD	Single Tag	<TAGNAME>.00-<TAGNAME>.15	<TAGNAME>	L / H	*1 *2 *3
	1D Array	<TAGNAME>[xl].00-<TAGNAME>[xh].15	<TAGNAME>[xl]-<TAGNAME>[xh]		
	2D Array	<TAGNAME>[xl,yl].00-<TAGNAME>[xh,yh].15	<TAGNAME>[xl,yl]-<TAGNAME>[xh,yh]		
	3D Array	<TAGNAME>[xl,yl,zl].00-<TAGNAME>[xh,yh,zh].15	<TAGNAME>[xl,yl,zl]-<TAGNAME>[xh,yh,zh]		

Data Type		Bit Address	Word Address	32 bit	Remarks
REAL LREAL*6	Single Tag	-	<TAGNAME>		*1 *2 *3
	1D Array		<TAGNAME>[xl]- <TAGNAME>[xh]		
	2D Array		<TAGNAME>[xl,yl]- <TAGNAME>[xh,yh]		
	3D Array		<TAGNAME>[xl,yl,zl]- <TAGNAME>[xh,yh,zh]		
DINT UDINT DWORD	Single Tag	<TAGNAME>.00- <TAGNAME>.31	<TAGNAME>		*1 *2 *3
	1D Array	<TAGNAME>[xl].00- <TAGNAME>[xh].31	<TAGNAME>[xl]- <TAGNAME>[xh]		
	2D Array	<TAGNAME>[xl,yl].00- <TAGNAME>[xh,yh].31	<TAGNAME>[xl,yl]- <TAGNAME>[xh,yh]		
	3D Array	<TAGNAME>[xl,yl,zl].00- <TAGNAME>[xh,yh,zh].31	<TAGNAME>[xl,yl,zl]- <TAGNAME>[xh,yh,zh]		
STRING	Single Tag	-	<TAGNAME>		*2 *7

*1 The number of elements in each dimension is displayed as l (minimum number of elements) to h (maximum number of elements).

*2 <TAGNAME>: The Tag Name includes the structure name if structure is required. The maximum number of characters for a Tag Name is 255 including delimiters and element number. The maximum number of characters when using D-Script is limited to 54.

Ex.) BOOL type single tag: "BOOLTAG"
BOOL array element: "BOOLARRAY[5]"
INT type single tag: "INTTAG"
WORD type bit address: "WORDTAG.15"
DINT type bit address: "DINTTAG.31"
STRING type word address "STRINGTAG"

For Tag and Element Names, you can use alphanumeric characters (upper and lower case), the underscore, and multi-byte characters such as those used for Japanese.

The maximum number of single-byte characters is 127.

Numbers and underbars cannot be used for the first character.

The use of two underbars in succession is not possible.

The use of [! ” # $ % & ’ ( ) = - ~ ^ \ | ` @ { [+ ; * : }] < > , . ? /] and spaces are not possible.

You cannot start names with any of the following text:

LS, USR, SCR, PRT

*3 Array: Number of array element is included in the controller tag information. Since the element number starts from 0, maximum element number is [Element Number-1].

INTARRAY INT[1...16,1...256] can be used in the range of INTARRAY[1-16,1-256].

Array’s maximum element number is 65535 including 2D or 3D.

1D Array EX: ARRAY[0...65534](INT) Element number: 65535

2D Array EX: ARRAY[0...1,0...32767](BOOL) Element number: 65534

3D Array EX: ARRAY[0...1,0...1,16383](DINT) Element number: 65532

*4 BYTE, SINT and USINT: Handled as 8-bit devices in the External Device, but as 16-bit devices in GP-Pro EX. Therefore, 0 (zero) is set to under byte.
When writing data to BYTE, SINT, or USINT devices from the Display, the lower byte is written. Upper byte is not written.
Note that strings cannot be used because the Upper byte cannot be used.

*5 The system data area is initially set up with 16 words of items. If you set up less than 16 words of items, after allocating a 16 word or larger array of tags in the system data area, select only the necessary items.

*6 LREAL: 64-bit register on the External Device, but GP-Pro EX handles it as 32-bit Float data.

*7 STRING: Available to define only 1 dimension. Maximum number of characters is 1986 half size characters.

NOTE

- You may not be able to use some device addresses if you change the number of elements or number of dimensions in an array.
- Please refer to the GP-Pro EX Reference Manual for system data area.

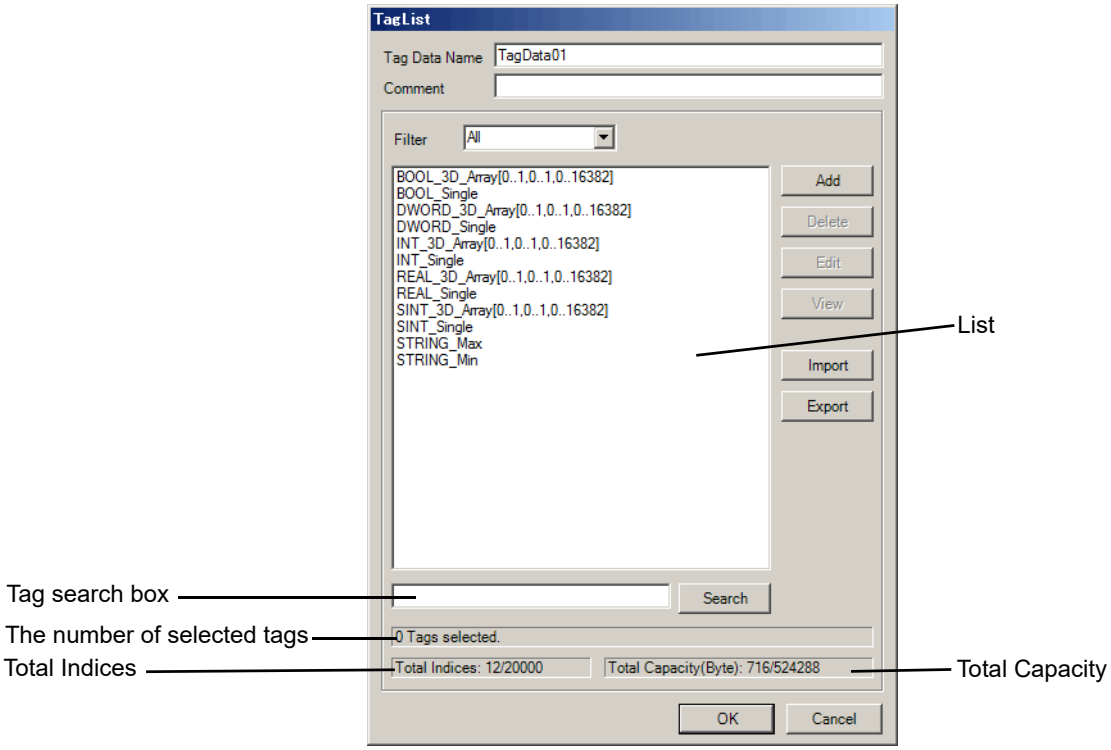
  Cf. GP-Pro EX Reference Manual "LS Area (Direct Access Method Area)"
- Please refer to the precautions on manual notation for icons in the table.

  ☞"Manual Symbols and Terminology"

■ Tag List Dialog Settings

- Tag list

To display the tag list, from GP-Pro EX go to [Individual Device Settings] and click [New] or [Edit].



Setup Items	Setup Description
Tag Data Name	Enter the Tag Data name.
Comment	Enter comments.
Filter	Filters tags displayed in the list. Filters tags using an arbitrary string. To filter by data type, select the data type from the pull down menu. Tags can be filtered by the following conditions from the pull down menu. • All Displays all tags.
List	Displays tags registered in the Tag Data. Displays a data type and comment when a cursor is moved over a tag.
Add	Create a new tag. ☞" ■ Creating a new tag" (page 98)
Delete	Deletes a selected tag.
Edit	Edits a selected tag.
View	Displays the configuration of the selected tag.
Import	Imports (add) tags from a Clipboard. ☞" ◆ Log File Format" (page 97)
Export	Exports the tag to the clipboard. Paste it to a text editor or other software to review its contents.
Tag search box	Enter the tag name and click [Search] to locate the tag.

Setup Items	Setup Description
The number of selected tags	Displays the number of selected tags.
Total Indices	Displays the total number of tag indices registered in the Tag Data. (Maximum 20000)
Total Capacity	Displays the size of selected and registered tags.

■ Importing Tag Data for “NJ Series (Structured Tag List)” — “Paste Tags”

This section describes the procedure for selecting “NJ Series (Structured Tag List)” in GP-Pro EX, copying the tag list from a project created in Sysmac Studio, and pasting it (importing) into the tag list in GP-Pro EX via the clipboard.

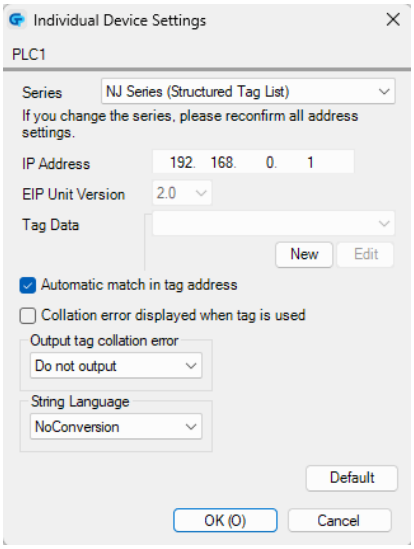
NOTE

- To reuse tag data by importing a tag definition file (XML file) used in another GP-Pro EX project, refer to " ■ Importing Tag Data for “NJ Series (Structured Tag List)” — “Import From File”" (page 58).
- For the procedure to import tag data when “NJ Series” is selected in [Series], refer to " ■ Importing Tag Data for “NJ Series”" (page 62).

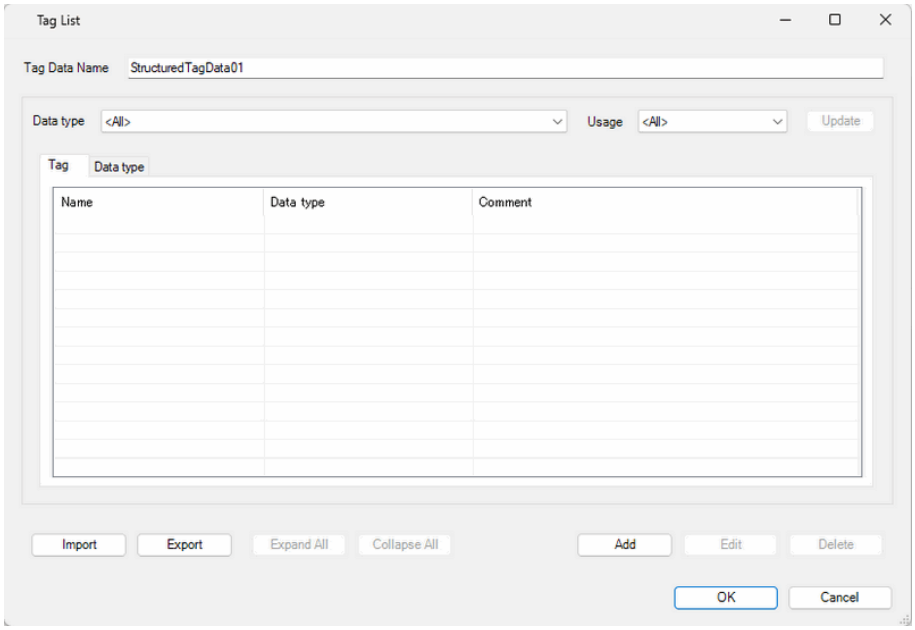
1 Set a tag name and data type using Sysmac Studio.

2 Select [Export Global Variables]-[CX-Designer] from the [Tool] menu. The tag list is copied to the clip board.

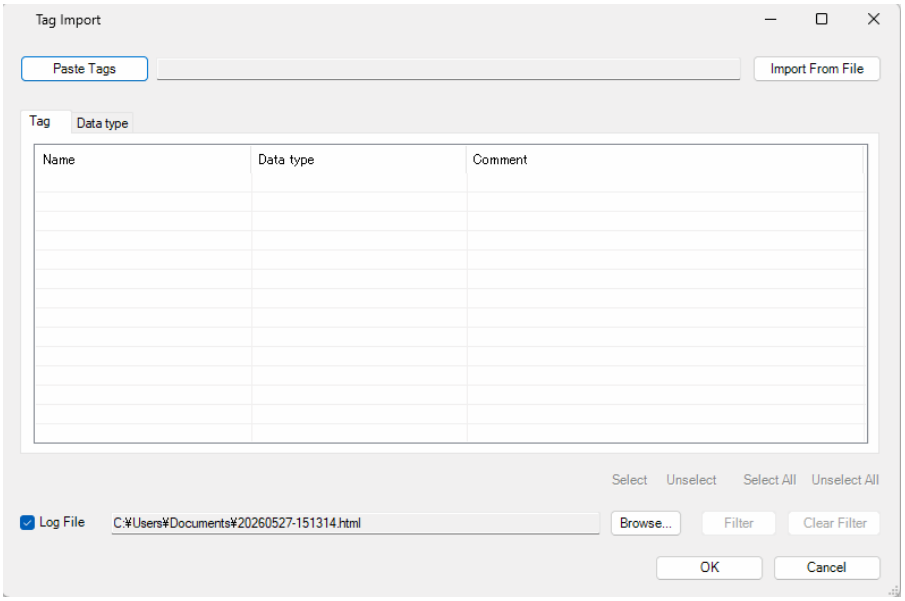
3 From GP-Pro EX, go to the [Individual Device Settings] dialog box and from [Series], select [NJ Series (Structured Tag List)].



4 Click [New] under [Tag Data] to display the [Tag List], and then click [Import].

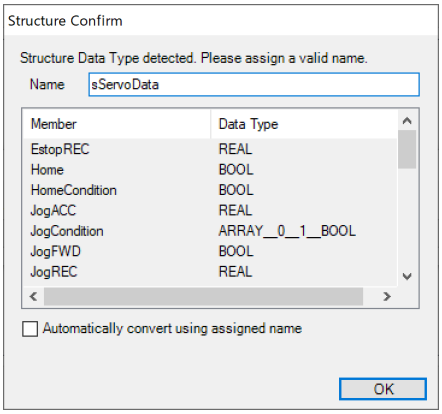


5 Click [Paste Tags], and paste the tag which is exported to the clipboard.



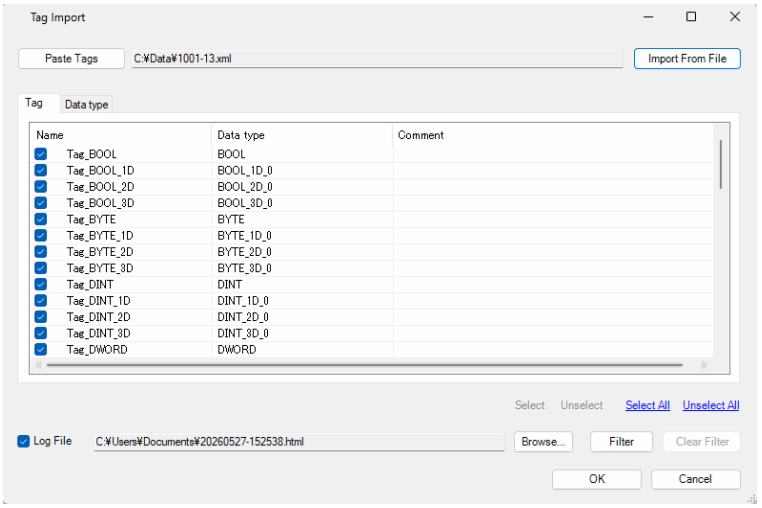
NOTE

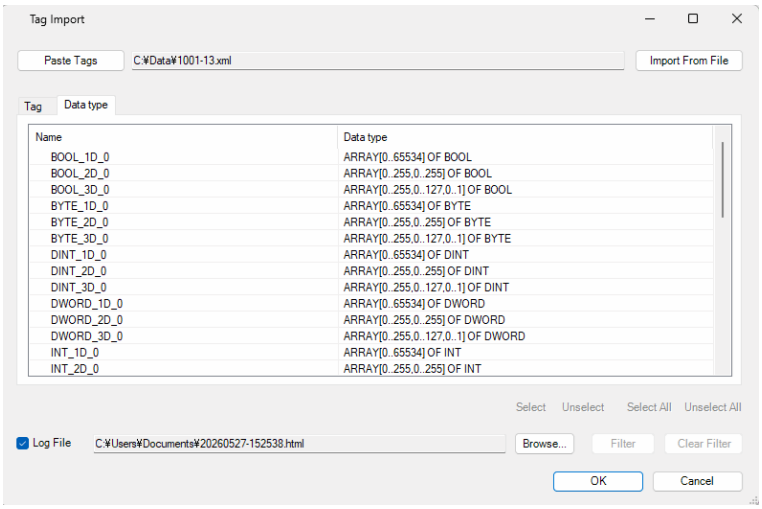
- If the tag data includes structures, the [Structure Confirm] dialog box is displayed. When the [Automatically convert using assigned name] option is enabled, structure names are temporarily assigned so you can register them all in one step. If the option is not enabled, enter structure names individually and click [OK] to register them.



- After importing tags, the structure name cannot be changed. If a change is required, the tags must be re-imported. However, if the tags are not used, the structure name can be changed even after import.

6 The tag data is displayed in two tabs: [Tag] and [Data Type]. Select the tags you want to import by selecting them in the [Tag] tab, and then click [OK] to complete the import.





NOTE

- If a tag data comment contains more than 32 characters, any characters beyond the 32nd will be deleted during import.
- You cannot import the system-defined tags and structures as the ladder software.
- If tags which cannot be imported are stored in the tag list, the tag data import dialog box to prompt the log output will be displayed.
  ☞" ◆ Log File Format" (page 70)
- For the tag information imported from the tag list, the total number of tags must stay within 20000 (maximum).
- A one dimensional array with one array element is imported as a non-array tag.
- The first dimension in a multidimensional array definition must be 2 or greater.

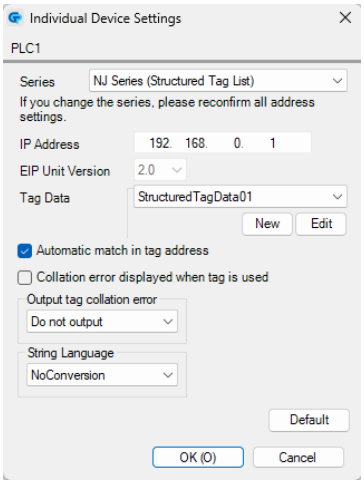
■ Importing Tag Data for “NJ Series (Structured Tag List)” — “Import From File”

This section explains the procedure for exporting an existing tag definition file (XML file) created in GP-Pro EX with “NJ Series (Structured Tag List)” selected, and importing it into another project file with “NJ Series (Structured Tag List)” selected.

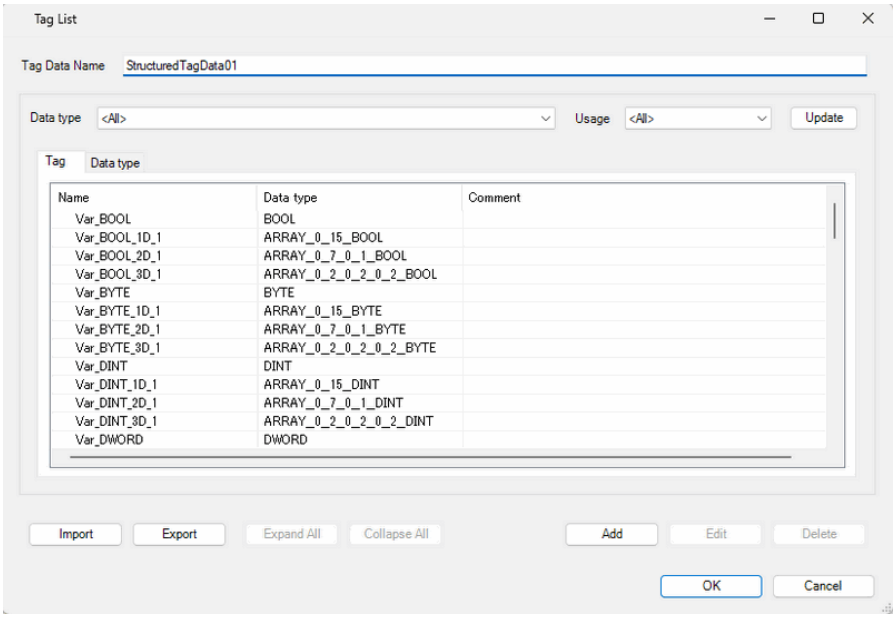
NOTE

- For the procedure to copy the tag list from a project created in Sysmac Studio and paste (import) it into the tag list in GP-Pro EX via the clipboard, refer to " ■ Importing Tag Data for “NJ Series (Structured Tag List)” — “Paste Tags”" (page 54).
- For the procedure to import tag data when “NJ Series” is selected in [Series], refer to " ■ Importing Tag Data for “NJ Series”" (page 62)

1 In GP-Pro EX, open the [Individual Device Settings] dialog box, select [NJ Series (Structured Tag List)] from [Series], and then select the exported tag definition file in [Tag Data].

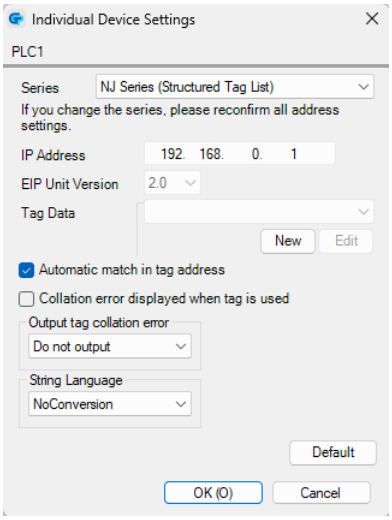


2 Click [Edit] under [Tag Data] to display the [Tag List], and then click [Export].

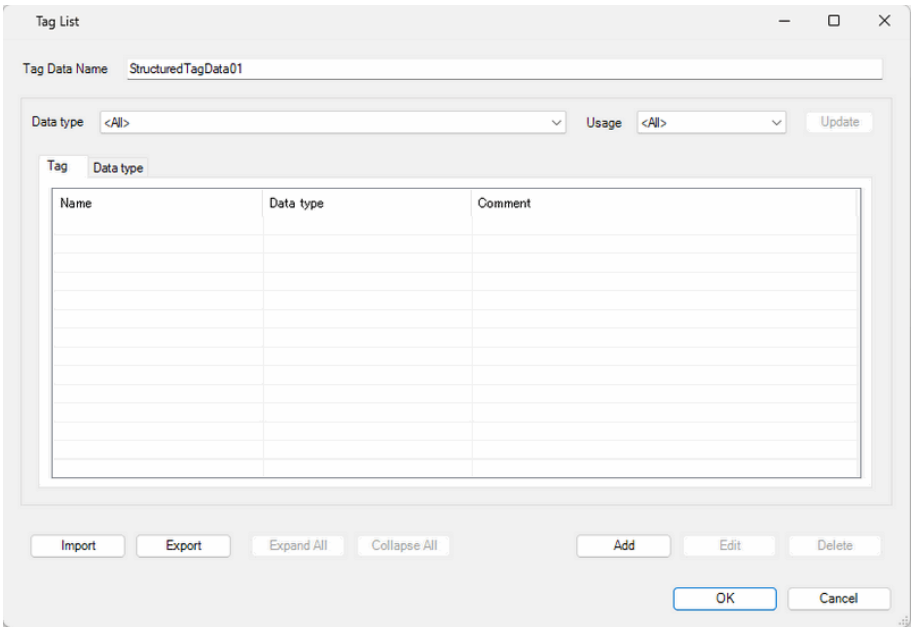


3 Select the destination for saving the tag data, enter a file name, and click [Save] to save the tag definition file (XML file). The [Tag List] dialog box will be displayed to notify that the export has been completed successfully. Click [OK] to close the dialog box.

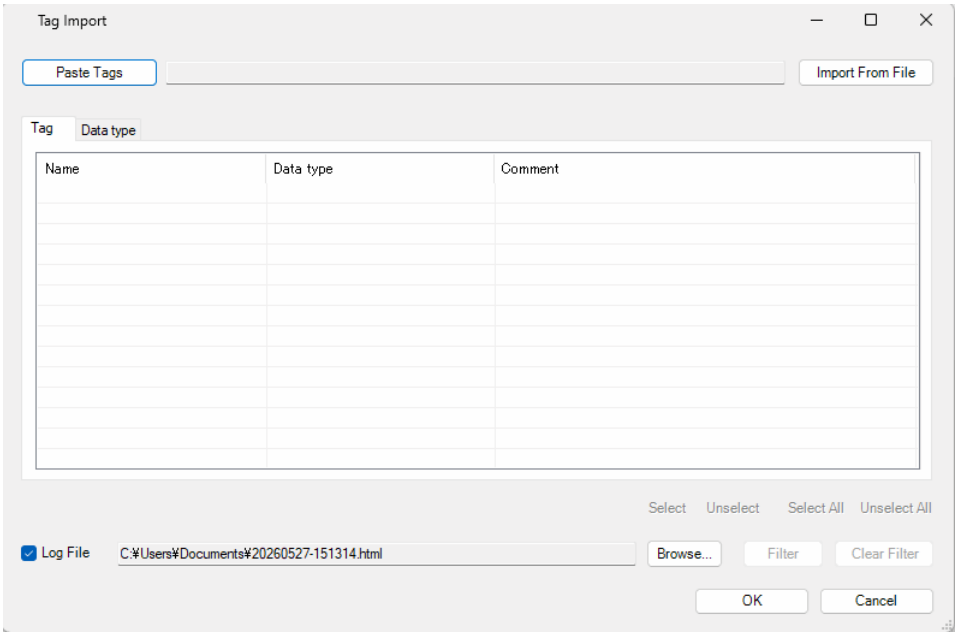
4 Next, import the exported tag definition file (XML file) into the GP-Pro EX project where it will be used. In GP-Pro EX, display the [Individual Device Settings] dialog box and select [NJ Series (Structured Tag List)] from [Series].



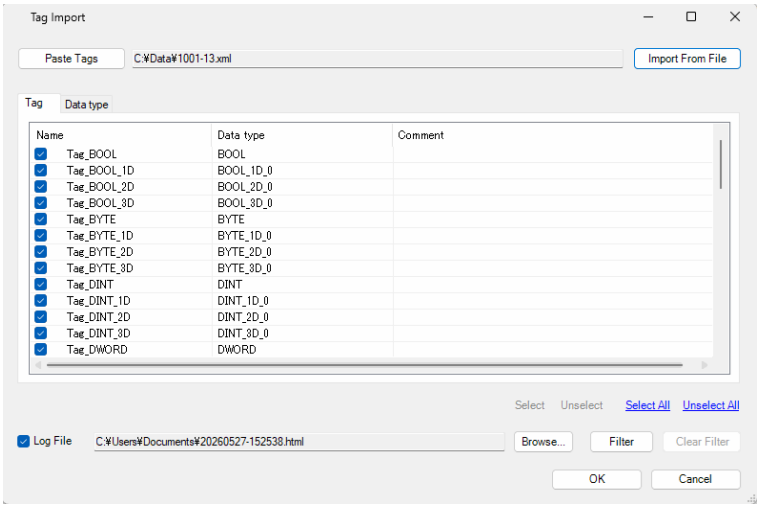
5 Click [New] under [Tag Data] to display the [Tag List], and then click [Import].

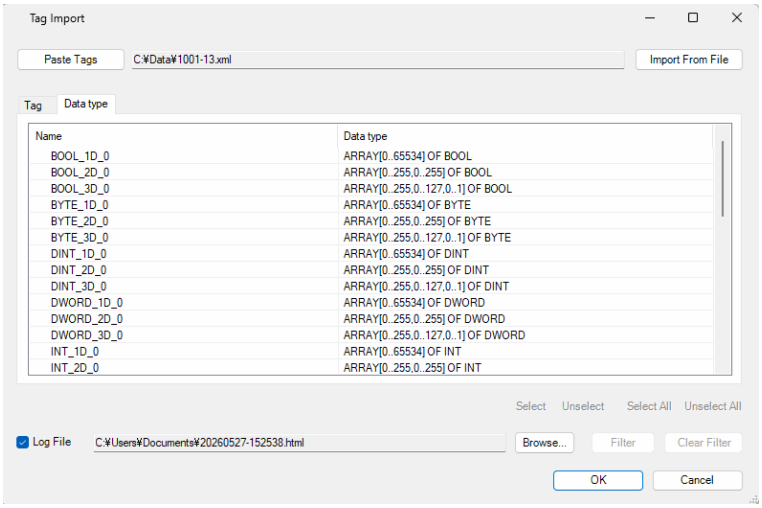


6 Click [Import From File], select the tag data (XML file) exported in Step 3, and then click [Open].



7 The tag data is displayed in two tabs: [Tag] and [Data Type]. Select the tags you want to import by selecting them in the [Tag] tab, and then click [OK] to complete the import.





8 After the import is completed, the import results are displayed.

■ Importing Tag Data for “NJ Series”

This section describes the procedure for selecting “NJ Series” in GP-Pro EX, copying the tag list from a project created in Sysmac Studio, and pasting it (importing) into the tag list in GP-Pro EX via the clipboard.

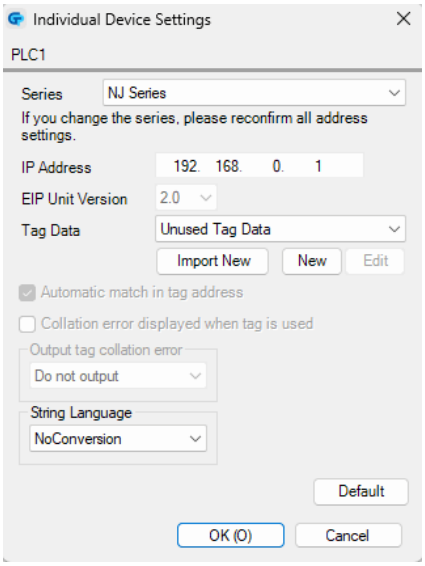
NOTE

- When prioritizing compatibility with existing project files created with “NJ Series” in GP-Pro EX, follow this procedure to import the data. To switch to [NJ Series (Structured Tag List)], refer to " ■ Switching from “NJ Series” to “NJ Series (Structured Tag List)”" (page 65).

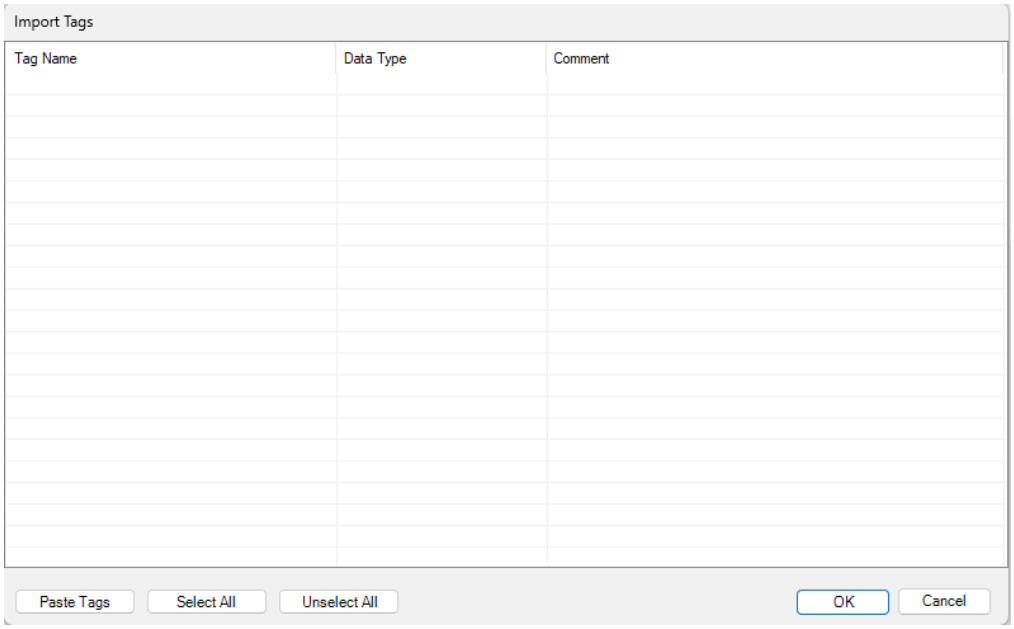
1 Set a tag name and data type using Sysmac Studio.

2 Select [Export Global Variables]-[CX-Designer] from the [Tool] menu. The tag list is copied to the clip board.

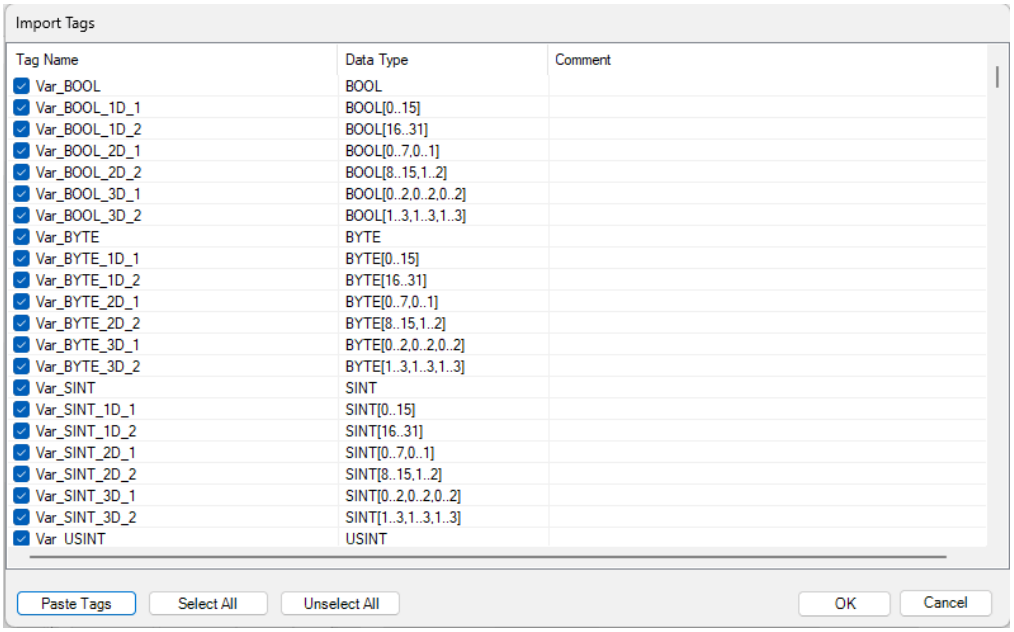
3 From GP-Pro EX, go to the [Individual Device Settings] dialog box and from [Series], select [NJ Series].



4 Click [Import New] to display the [Import Tags].



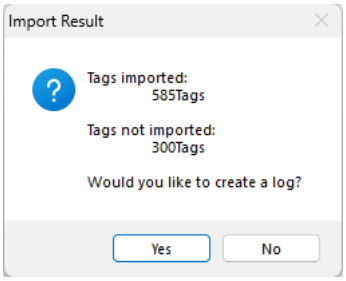
5 Click [Paste Tags], and paste the tag which is exported to the clipboard.



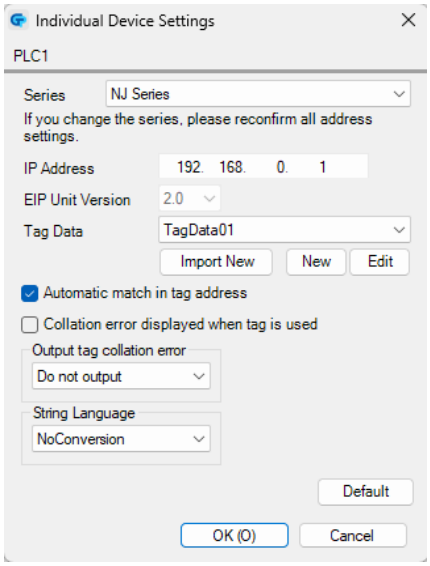
NOTE

- If a tag data comment contains more than 32 characters, any characters beyond the 32nd will be deleted during import.
- You cannot import the system-defined tags and structures as the ladder software.
- If tags which cannot be imported are stored in the tag list, the tag data import dialog box to prompt the log output will be displayed.
  ☞" ◆ Log File Format" (page 70)
- For the tag information imported from the tag list, the total number of tags must stay within 20000 (maximum).
- A one dimensional array with one array element is imported as a non-array tag.
- The first dimension in a multidimensional array definition must be 2 or greater.

6 Check the tags to be imported and click [OK] to complete the import. The numbers of successfully imported and failed tags are then displayed. To save the details of the results to a log file, click [Yes]; if not, click [No].



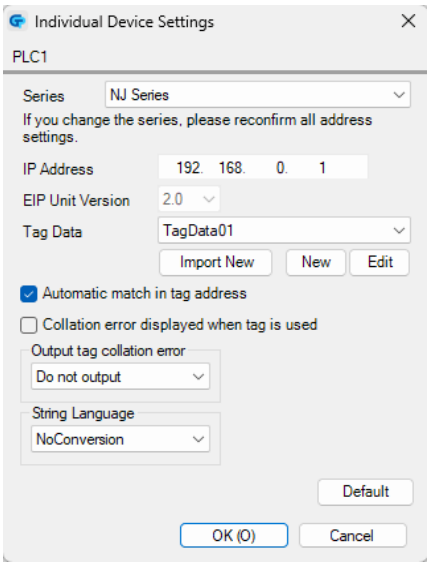
7 The imported tag data is registered as “Tag Data 01” in [Tag Data] within [Individual Device Settings]. Click [OK] to complete the import process.



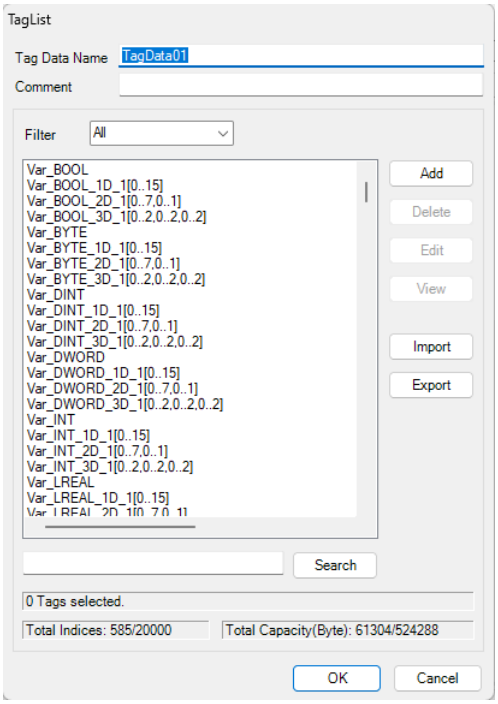
■ Switching from “NJ Series” to “NJ Series (Structured Tag List)”

This section describes the procedure for switching from “NJ Series” to “NJ Series (Structured Tag List)” by exporting the tag list from “NJ Series” and pasting (importing) it into the tag list of “NJ Series (Structured Tag List)”.

1 In GP-Pro EX, open the [Individual Device Settings] dialog box and select “NJ Series” from [Series]. Under [Tag Data], select the tag data registered in Step 7 of " ■ Importing Tag Data for “NJ Series”" (page 62) (e.g., “Tag Data 01”), and then click [Edit].

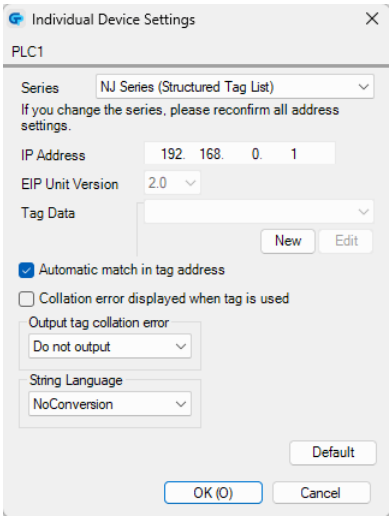


2 Click [Export] under [Tag List].

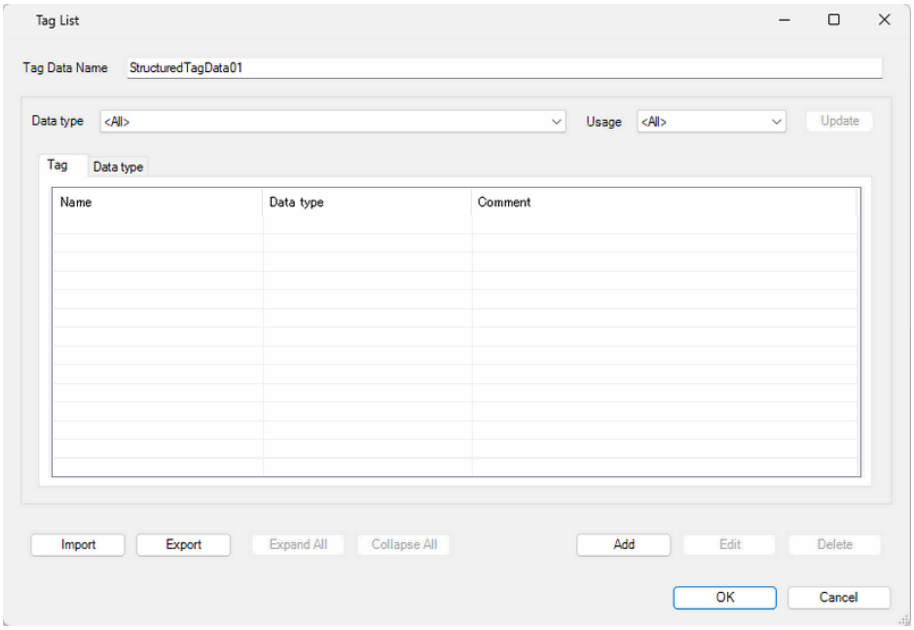


3 The tag list for [NJ Series] is copied to the clipboard. Click [OK]. The [Tag Export] dialog box appears. Click [OK] to close it.

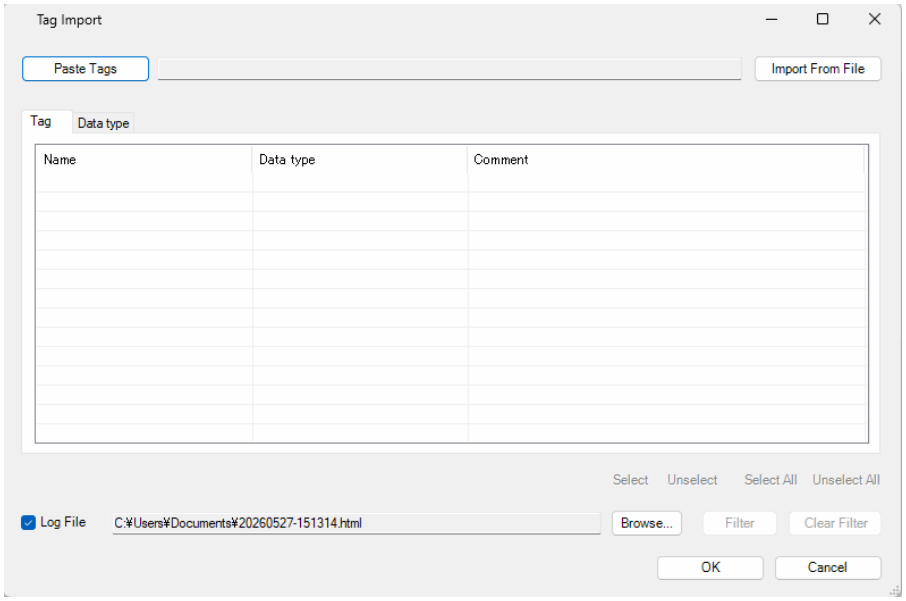
4 Display the [Individual Device Settings] dialog box and select [NJ Series (Structured Tag List)] from [Series].



5 Click [New] under [Tag Data] to display the [Tag List], and then click [Import].

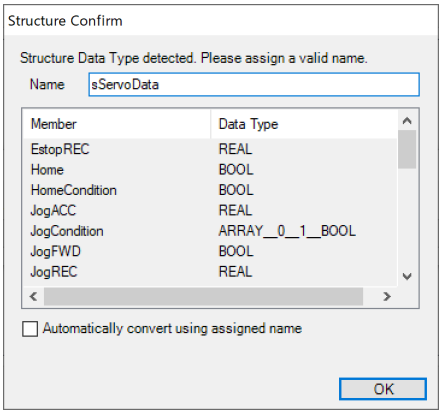


6 Click [Paste Tags], and paste the tag which is exported to the clipboard.



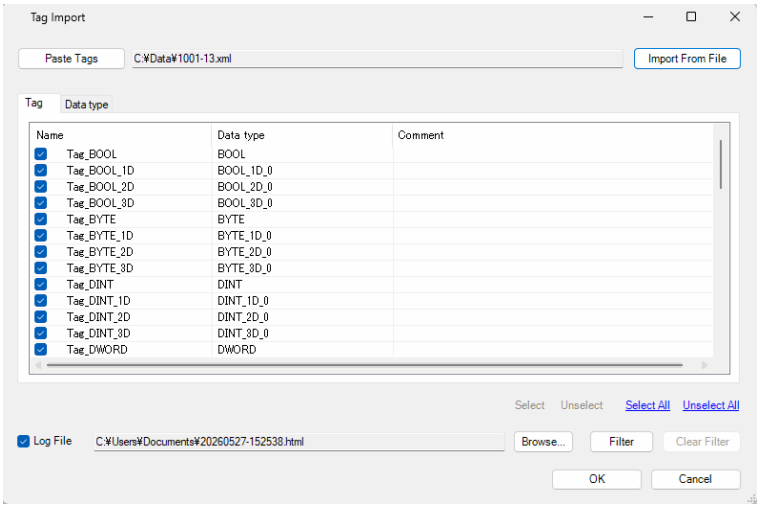
NOTE

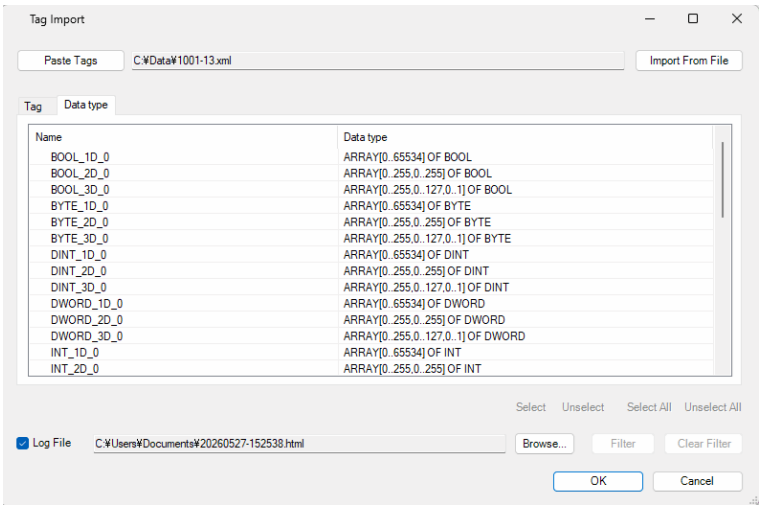
- If the tag data includes structures, the [Structure Confirm] dialog box is displayed. When the [Automatically convert using assigned name] option is enabled, structure names are temporarily assigned so you can register them all in one step. If the option is not enabled, enter structure names individually and click [OK] to register them.



- After importing tags, the structure name cannot be changed. If a change is required, the tags must be re-imported. However, if the tags are not used, the structure name can be changed even after import.

7 The tag data is displayed in two tabs: [Tag] and [Data Type]. Select the tags you want to import by selecting them in the [Tag] tab, and then click [OK] to complete the import.

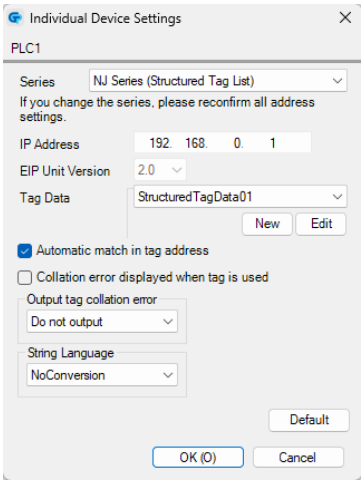




NOTE

- If a tag data comment contains more than 32 characters, any characters beyond the 32nd will be deleted during import.
- You cannot import the system-defined tags and structures as the ladder software.
- If tags which cannot be imported are stored in the tag list, the tag data import dialog box to prompt the log output will be displayed.
  ☞" ◆ Log File Format" (page 70)
- For the tag information imported from the tag list, the total number of tags must stay within 20000 (maximum).
- A one dimensional array with one array element is imported as a non-array tag.
- The first dimension in a multidimensional array definition must be 2 or greater.

8 The imported tag data is registered as “StructuredTagData01” in [Tag Data] within [Individual Device Settings]. Click [OK] to complete the import process.



NOTE

- When switching from “NJ Series” to “NJ Series (Structured Tag List),” please note the following two points.
  a) When changing from [NJ Series] to [NJ Series (Structured Tag List)], BYTE, SINT, and USINT are handled as 8-bit data instead of 16-bit data.
  For example, if variables of type BYTE, SINT, or USINT were displayed in a Data Display using a 16-bit data format, after the change, the device address size will be incorrect. Therefore, the Data Display must be modified so that the data format uses 8-bit data.
  P ay special attention to this behavior, especially when arrays are used, as the data of two addresses will display after the change.
  b) After importing, if you click [OK] in the [Individual Device Settings] dialog box without any valid tag data, all the addresses will be set to Undefined (unrecognized). Before clicking [OK] in the [Individual Device Settings] dialog box, ensure the same tag list as the [NJ Series] (the Global Variable List from Sysmac Studio) was imported.
  ☞"5.4 NJ Series (Tag Specification)/ NJ Series (Structured Tag List)" (page 49)

◆ Log File Format

If tags which cannot be imported are stored in the tag list, the log file of the following format can be output.

```
Source File Name:
        [Error Log file name]

Storage Information:
        Size: 0Bytes
        Last Update Date: [Last update date]
        Comment:
        PLC Type: NJ Series
        Tag Count: [The number of registered tags]

Tags imported:
        [The number of imported tags]Tags

Tags changed:
        [The number of changed tags]Tags

Tags not imported:
        [The number of tags failed to import]Tags

Tags changed:
        [Names of changed tags]
                :
                :

Tags not imported:
        [Names of tags failed to be imported]
                :
```

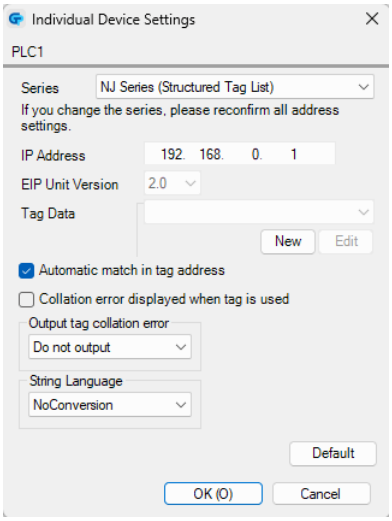
Order	Item	Description
1	Source File Name	Name of the log file.
2	Size	Not used (0 bytes).
3	Last Update Date	The most recent update data of the tag list YYYY-MM-DD◆HH:MM(◆ represents a space character)
4	Comment	Not used.
5	PLC Type	Fixed to NJ Series.
6	Tag Count	The number of tags registered in the tag list.
7	Tags imported	The number of tags imported from the tag list.
8	Tags changed*1	Registered tags changed to the tag list information
9	Tags not imported	The number of tags which failed to import from the tag list.
10	Tag changed *1	The list of registered tags that are changed to the tag list information
11	Tags not imported	The list of tags which failed to import from the tag list.

*1 Only outputs when import (add) is selected in the tag list dialog box.

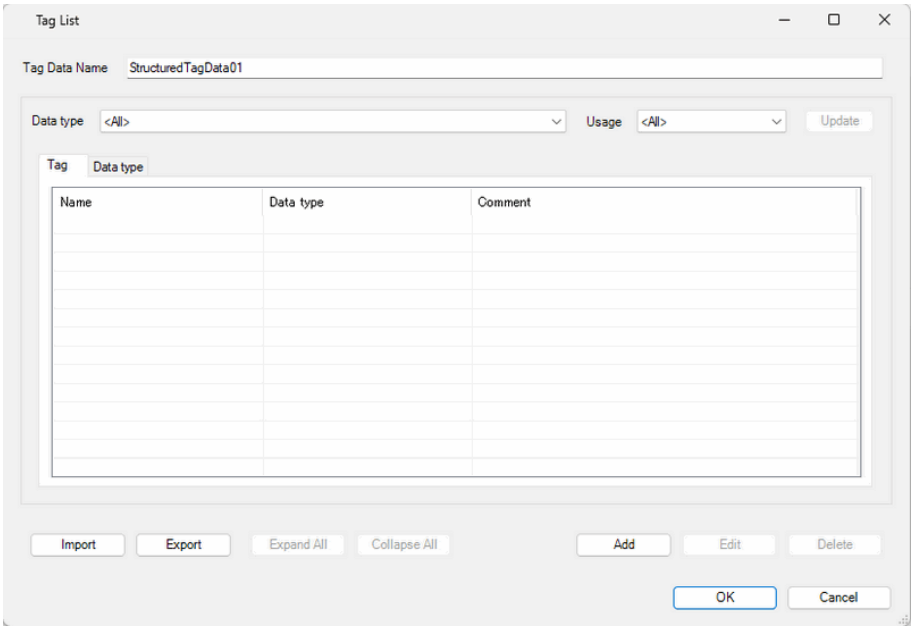
■ Creating a new tag

◆ When creating new tags with “NJ Series (Structured Tag List)” selected

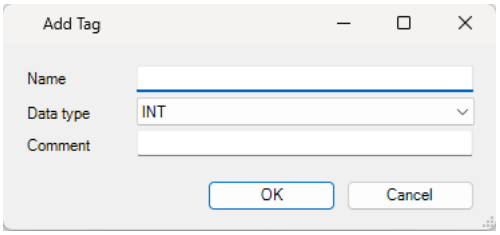
1 Go to the [Individual Device Settings] dialog box from GP-Pro EX and select "NJ Series (Structured Tag List)" from [Series].



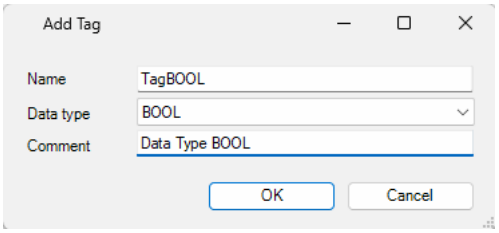
2 Click [New]. Type the name of the new tag data in [Tag Data Name] and enter any comment in [Comment].



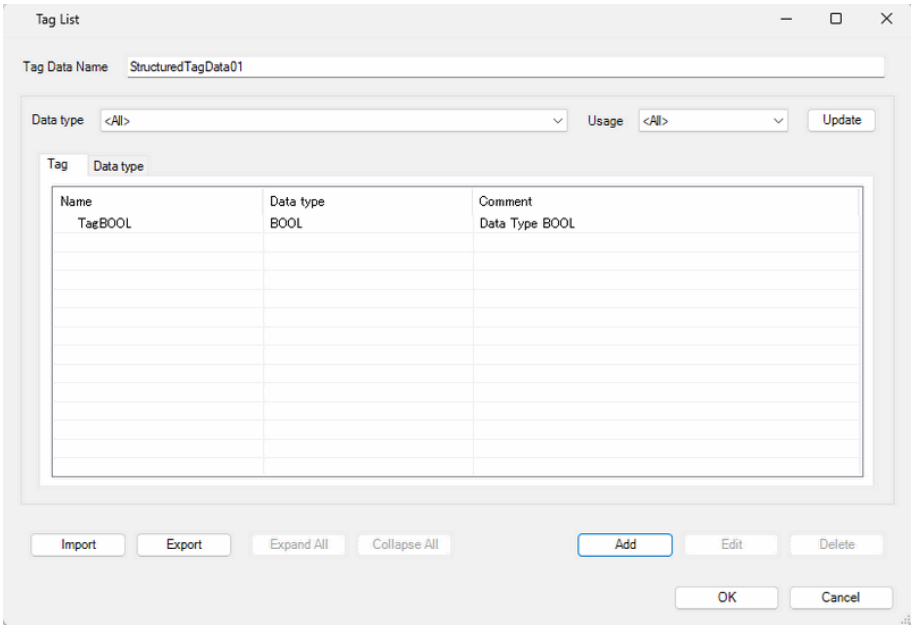
3 Click [Add] to display the [Tag] dialog box.



4 Enter the Tag Name, Array Dimensions, and Comment and select the Data Type to be used.



5 Generated controller tags are displayed in the list.



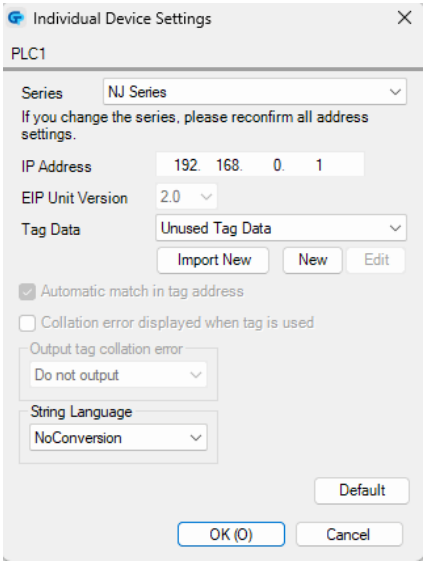
NOTE

- In GP-Pro EX, you cannot create the same system-defined tags and structures as the ladder software.
- In GP-Pro EX, you cannot create the same user-defined structure set up as a global variable as the ladder software. However, you can import such a structure into GP-Pro EX.

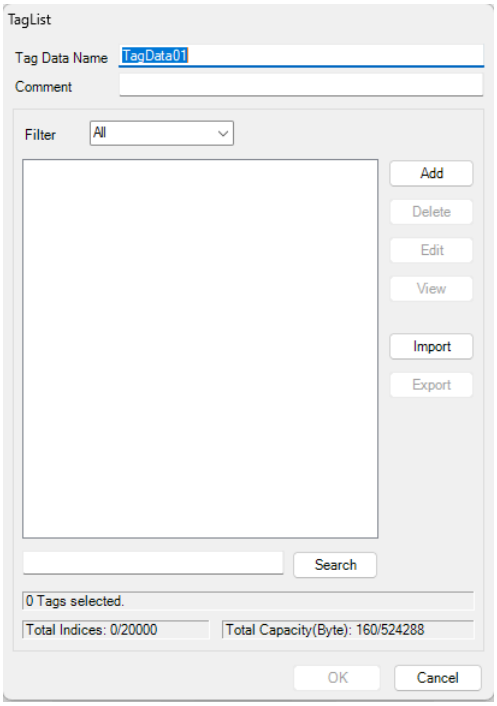
☞" ■ Importing Tag Data for “NJ Series (Structured Tag List)” — “Paste Tags”" (page 54)
☞" ■ Importing Tag Data for “NJ Series (Structured Tag List)” — “Import From File”" (page 58)

◆ When creating new tags with “NJ Series” selected

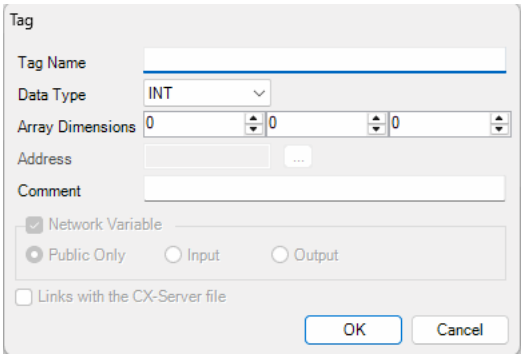
1 Go to the [Individual Device Settings] dialog box from GP-Pro EX and select "NJ Series" from [Series].



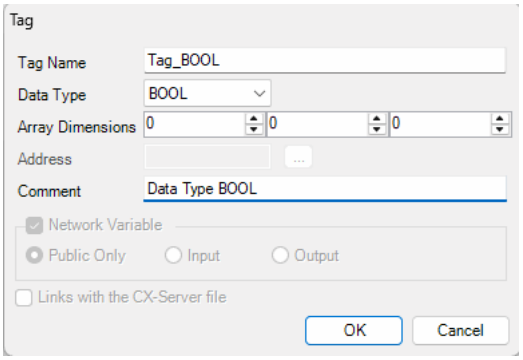
2 Click [New]. Type the name of the new tag data in [Tag Data Name] and enter any comment in [Comment].



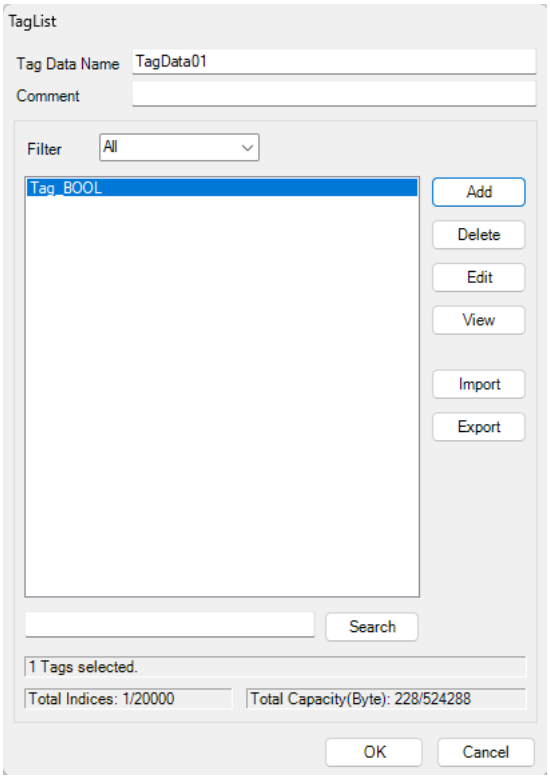
3 Click [Add] to display the [Tag] dialog box.



4 Enter the Tag Name, Array Dimensions, and Comment and select the Data Type to be used.



5 Generated controller tags are displayed in the list.



NOTE

- In GP-Pro EX, you cannot create the same system-defined tags and structures as the ladder software.
- In GP-Pro EX, you cannot create the same user-defined structure set up as a global variable as the ladder software. However, you can import such a structure into GP-Pro EX.

☞" ■ Importing Tag Data for “NJ Series”" (page 89)

6 Device Code and Address Code

Use device codes and address codes when you set "Device Type & Address" for the address type of the data display or other devices.

NOTE

- When using the Tag Data in CJ2 Series, NJ Series, NX1P Series, NX1 Series, or NX7 Series device code and address code cannot be used.

Device	Device Name	Device Code (HEX)	Address Code
Channel IO Area	-	0080	Word Address
Internal Auxiliary Relay	W	0082	Word Address
Special Auxiliary Relay	A	0085	Word Address
Hold Relay	H	0084	Word Address
Timer (Preset Value)	T	0060	Word Address
Counter (Preset Value)	C	0061	Word Address
Data Memory	D	0000	Word Address
EM Area (E0-E18)	E0	0010	Word Address
	E1	0011	Word Address
	E2	0012	Word Address
	E3	0013	Word Address
	E4	0014	Word Address
	E5	0015	Word Address
	E6	0016	Word Address
	E7	0017	Word Address
	E8	0018	Word Address
	E9	0019	Word Address
	EA	001A	Word Address
	EB	001B	Word Address
	EC	001C	Word Address
	ED	001D	Word Address
	EE	001E	Word Address
	EF	001F	Word Address
	E10	0020	Word Address
	E11	0021	Word Address
	E12	0022	Word Address

Device	Device Name	Device Code (HEX)	Address Code
EM Area (E0-E18)	E13	0023	Word Address
	E14	0024	Word Address
	E15	0025	Word Address
	E16	0026	Word Address
	E17	0027	Word Address
	E18	0028	Word Address
EM Area (Current bank)	EM	0001	Word Address
Task Flag Area (Status)	TK	0002	Value of Word Address / 2
Index Registers	IR	0003	Word Address
Data Registers	DR	0004	Word Address

7 Error Messages

Error messages are displayed on the Display screen as follows: "No.: Device Name: Error Message (Error Occurrence Area)". Each description is shown below.

Item	Description
No.	Error number
Device Name	Name of the External Device where an error has occurred. Device/PLC name is the title of the External Device set with GP-Pro EX. (Initial value [PLC1])
Error Message	Displays messages related to an error that has occurred.
Error Occurrence Area	Displays the IP address or device address of the External Device where an error has occurred, or error codes received from the External Device. NOTE • Received error codes are displayed as "Decimal [Hex]". • Device address is displayed as "Address: Device address". • IP address is displayed as "IP address (Decimal): MAC address (Hex)".

Example of an Error Message

"RHAA035:PLC1: Error has been responded for device write command (Error Code: 1[01H])"

NOTE
- Refer to your External Device manual for details on received error codes.
- Please refer to "Display-related errors" of "Maintenance/Troubleshooting Guide" for a common error message to the driver.

■ Error Messages Unique to External Device

Error number	Error Message	Description
RHxx128	(Node Name): Error has been responded for initial communication command (Encapsulation Error Code: [(Hex)])	Error has been responded for initial communication command.
RHxx129	(Node Name): Error has been responded for device read command (Encapsulation Error Code: [(Hex)])	Error has been responded for device read command.
RHxx130	(Node Name): Error has been responded for device write command (Encapsulation Error Code: [(Hex)])	Error has been responded for device write command
RHxx131	(Node Name): Error has been responded for initial communication command (CIP Error Code: [(Hex)])	Error has been responded for initial communication command.
RHxx132	(Node Name): Error has been responded for device read command (CIP Error Code: [(Hex)])	Error has been responded for device read command.
RHxx133	(Node Name): Error has been responded for device write command (CIP Error Code: [(Hex)])	Error has been responded for device write command
RHxx134	(Node Name): Error has been responded for initial communication command (General STS Code: [(Hex)], Additional STS Code: [(Hex)])	Error has been responded for initial communication command.

Error number	Error Message	Description
RHxx135	(Node Name): Error has been responded for device read command (General STS Code: [(Hex)], Additional STS Code: [(Hex)])	Error has been responded for device read command.
RHxx136	(Node Name): Error has been responded for device write command (General STS Code: [(Hex)], Additional STS Code: [(Hex)])	Error has been responded for device write command
RHxx137	(Node Name): To get the tag information failed (The tag counts which failed to get: (Decimal))	Received from the External Device an error response to the get address packet. On the External Device, register the tags you are accessing from the Display.
RHxx144	(Node Name): Matching of the tag failed (The tag counts which failed in matching: (Decimal))	Failed when matching tags. Ensure tags on the Display and tags on the External Device are matching.
RHxx145	(Node Name): Tag is being collated.Please wait for a while.	Collating tags on the External Device and Display. In the driver's [Individual Device Settings] dialog box, when the [Automatic match in tag address] check box is selected, a collation error displays when changing the value of a collated tag on the External Device.
RHxx146	(Node Name): The CF card has not been inserted, or the CF card hatch is open.	The CF Card is not inserted or CF Card cover is open. Check the CF Card and CF Card cover.
RHxx147	(Node Name): USB storage location not found.	USB storage is not connected. Check the USB storage device.
RHxx148	(Node Name): Failed to save file.	Unable to save tag collation error file due to one of the following. Check the number of files and the available space in the storage device where you are saving the tag collation error file. • Failed to create the CJTAG directory. • Failed to open the file. • Failed to write the file.
RHxx149	(Node Name): Tag is not registered ((Tag Name))	On tag collation, identified that a tag was not registered on the External Device. Register the tag in the External Device.
RHxx150	(Node Name): Data type is different ((Tag Name), GP-Pro EX: (Data Type) / PLC: (Data Type))	On tag collation, identified that data types between the Display and External Device are different. Please match tag data types.

Error number	Error Message	Description
RHxx151	(Node Name): Number of array dimensions is different ((Tag Name), GP-Pro EX: (Array Size) / PLC: (Array Size))	On tag collation, identified that array dimensions or size of STRING data between the Display and External Device are different. Please match the size of tag arrays and STRING data types.
RHxx152	(Node Name): Device is different ((Tag Name), GP-Pro EX: (Device Address) / PLC: (Device Address))	On tag collation, identified that tag device addresses between the Display and External Device are different. Please match tag device addresses.
RHxx153	(Node Nama): SD card access error (Error Status: [(Decimal)])	Unable to access the SD card Check the SD Card. Error status 1: SD card is not inserted. 2: Unmount 3: Unformatted 4: Write-protect 5: Others