

37



Restrictions

37.1	Restrictions on Names	37-2
37.2	Restrictions on Pro-Server EX	37-4
37.3	Restriction on Protocol	37-13

37.1 Restrictions on Names

■ Specifying a Macro to Use the Same Save File Name for each ACTION

You can change file names to [Node Name] or [Saved Data in Device Name (Symbol Name) of Provider Node] by specifying one of the macro codes shown below in [Saved File Name] in the parameter settings for each ACTION.

- Provider node name (Macro code: %NODE)

(Ex.) If the entry node "AGP1" is specified using "Data_%NODE", the file name will become "Data_AGP1".

- Saved data in the device name of provider node (Macro code: %DEV(Device Name or Symbol Name))

(Ex.) When storing "2043" to D100, if "Data_%DEV[D100]" is used, the file name will change to "Data_2043".

NOTE

- When using a macro for a save file name, be sure to enter the macro code correctly. Entering incorrectly, you could not save the file.

However, you cannot use the file name macro for the following data types:

- 8 bit
- TIME
- TIME_OF_DAY
- DATE
- DATE_AND_TIME

When you convert the data saved in the provider's device name (symbol name) to a file name, please pay attention to the following notes:

- Data types when specifying the device name (Default: Decimal, signed 16 bits)

The data type can be changed if after the device name a single-byte space and one of the data type specifications shown in the table below are attached.

(Ex.) When using decimal, unsigned 16 bits, and storing "40505" to D100, specifying "Lot_No%DEV[D100.WORD]" will change the file name to "Lot_No40505"

Data type	Data type specifying characters	Data type	Data type specifying characters
Bit	.BIT	32 bits without decimal code	.DWORD
16 bits with decimal code	.+WORD	Hexadecimal 32 bits	.HEXDWORD
16 bits without decimal code	.WORD	BCD 32 bits	.BCDDWORD
Hexadecimal 16 bits	.HEXWORD	Single-precision floating point	.FLOAT
BCD 16 bits	.BCDWORD	Double-precision floating point	.DOUBLE
32 bits with decimal code	.+DWORD	Character string	.STR

- Precautions when using non-character strings for symbol names

The file name is created using the data type registered on the "Symbol Registration" screen.

(Ex.) If the value "0x999" is stored to the BCD-type symbol "Product_3", when "Data_%DEV[Product_3]" is specified, the file name changes to "Data_9999".

- Precautions when using character strings for symbol names

Attaching an asterisk (*) plus a number after a symbol name allows you to specify the number of characters. The default value is 32 characters, and the maximum is 255 characters.

(Ex.) "%DEV[MOJI .STR .*10]" means that 10 characters after the symbol name "MOJI" are read out, and file names are created until the string NULL is reached.

37.2 Restrictions on Pro-Server EX

■ In case that the "Excel Report" ACTION is forcibly terminated

If the "Excel Report" ACTION is forcibly terminated for some reasons, chances are that you cannot open Excel files by double-click. (Excel starts with no book.)

In this case, follow the steps below to open Excel files:

- (1) On the Excel menu bar, select [Tools] - [Option] - [General].
- (2) Uncheck "Ignore other applications" shown below.

■ When the trigger button in Excel Report does not function normally

After the security patch of Microsoft Office is applied, the trigger button may not function normally. If such a case happens, update the output book following the steps as shown below.

- (1) Open the template file again with Pro-Studio EX.
- (2) Overwrite the template file without making any changes.
- (3) Delete the output book or update the output book using the NEW Book command.

■ Text substitution with Excel Report actions does not replace correctly

If you use multiple Excel report actions to replace text, depending on the timing of when they start, the text substitution process may not work.

When that happens, use one of the following to make the text substitution work correctly.

- Combine multiple text substitution tables into a single Excel workbook
- Run all Excel report actions for text substitution with the same trigger condition
- Set up the trigger conditions so the Excel report actions for text substitution do not start at the same time

■ Saving the network projectfile

For the saving destination and file name of the network project file, a semicolon (;) cannot be used.

■ The maximum registration number of each setting item

The maximum registration number for each item is shown in the table below.

Item	Limit value	Remarks
Maximum registration No. of nodes	1022 nodes	
Maximum symbol sheet No.	140 sheets for each entry node	
Maximum row No. for one symbol shee	1500 rows	
Row No. for one group	1499 rows	
Byte size of a group	When using data transfer function or device cache function: 10 Kbytes or less When using APIs: 1 Mbyte or less	
Maximum registration No. of communications between devices	3000 records	The total number of records of a distribution type of data transfer, a collection type of data transfer, and data transfer for ACTION in the whole network project.
Maximum registration No. of device caches	1000 or less	Note that alarm appears when over 100.
Maximum record No. in one device cache	1000 records	Note that alarm appears when over 100.
Total byte No. in one device cache	Always: 1 Kbyte Polling: 10 Kbytes	
Maximum registration No. of ACTIONS	500	
No. of data transfers or ACTIONS available with one trigger condition	300	
Accessible data No. using API queuing access	1500 or less, and also the number of data bytes is 1 Mbyte or less	
File name specification	250 characters or less by full path	

■ Guide to memory in use

The maximum size of a network project file is as follows.

Pro-Server EX Node: There is no restriction.

SP-5B40/WinGP Node: There is no restriction.

SP-5B10 Node: 262144 bytes

GP4000/LT4000 Series Node: 262144 bytes

GP3000 Series Node: 262144 bytes

LT3000 Node: 262144 bytes

GP Series Node: 59526 bytes

The following is the lowest amount of used memory with 'Pro-Server EX' loading a network project file.

Pro-Server EX Node: 1700 bytes approx.

SP-5B40/WinGP Node: 1000 bytes approx.

SP-5B10 Node: 1000 bytes approx.

GP4000/LT4000 Series Node: 1000 bytes approx.

GP3000 Series Node: 1000 bytes approx.

LT3000 Node: 1000 bytes approx.

GP Series Node: 400 bytes approx.

The table below shows used memory capacity for each item.

		Incremental memory for Pro-Server EX nodes	Incremental memory for GP Series nodes	Incremental memory for Pro-Server EX / nodes other than GP Series nodes	Supplement
Additional Function	Add one Pro-Server EX node	320 bytes approx.	100 bytes approx.	20 bytes approx.	
	Add one GP Series node	320 bytes approx.	100 bytes approx.	20 bytes approx.	
	Add one SP-5B40/WinGP node, SP-5B10 node, GP4000/LT4000 Series node, GP3000 Series node, or LT3000 node	600 bytes approx.	100 bytes approx.	20 bytes approx.	
	Add one Device/PLC to a SP-5B40/WinGP node, SP-5B10 node, GP4000/LT4000 Series node, GP3000 Series node, or LT3000 node	180 bytes approx.	0	50 bytes approx.	Depends on the type of Device/PLC or parameters.
	Add one trigger condition	200 bytes approx.	160 bytes approx.	200 bytes approx.	
	Add one record of a distribution type of data transfer	120 bytes approx.	1. Except for groups: 50 bytes approx. 2. The groups other than alignment groups: No. of group members x 50 bytes approx. 3. Alignment groups: No. of members x No. of elements x 50 bytes approx.	120 bytes approx.	For constant distribution, increases by the byte size of the constant.
	Add one record of a collection type of data transfer	120 bytes approx.	1. Except for groups: 50 bytes approx. 2. The groups other than alignment groups: No. of group members x 50 bytes approx. 3. Alignment groups: No. of members x No. of elements x 50 bytes approx.	120 bytes approx.	
	Add one device cache	50 bytes approx.	0	0	
	Add one record to a device cache	30 bytes approx.	0	0	

		Incremental memory for Pro-Server EX nodes	Incremental memory for GP Series nodes	Incremental memory for Pro-Server EX / nodes other than GP Series nodes	Supplement
Additional Function	Add one ACTION	250 bytes approx.	50 bytes approx.	120 bytes approx.	Depends on the type of ACTION or parameters.
Additional Symbol	Add one SymbolSheet	120 bytes approx.	0	0	
	Add one symbol which does not belong to Group Symbol	60 bytes approx.	0	0	
	Add one Group Symbol	180 bytes approx.	80 bytes approx.	0	
	Add one symbol is increased in Group Symbol	60 bytes approx.	120 bytes approx.	0	

■ Rules for Specifying Names

'Pro-Server EX' frequently requests you to specify names such as node names, symbol names. Please take the following rules into consideration when naming:

- (1) A name must consist of 32 double-byte characters (64 single-byte characters) or less.
- (2) The following characters are not available for names: + - * / % & ^ | < > \ : @ . , " [] # ? (Space) (TAB)
Some are used, however, in certain reserved words or concatenators.
- (3) You can use "#" at the beginning of a name when specifying a new node or symbol name, but 'Pro-Server EX' recognizes these words starting with "#" as reserved words. Therefore, don't use "#" at the beginning of a name.
- (4) You cannot use single-byte numeric characters at the beginning of a name.
- (5) You may connect names, for example, for grouped symbols, but don't exceed the maximum number of characters (255 double-byte characters) including extensions like "." (dot) and "[" (brackets), elemental numbers, and global constant numbers.

Ex.) Group1[1].Symbol1
Group2[LOTNO].OpenName[MACHINE1].Temp

- (6) Names are not case-sensitive.

<Recommended Rules>

Sometimes 'Pro-Server EX' exchanges data with other applications.

Names are then used as keywords, and thus 'Pro-Server EX' can fail to exchange data according to specifications of other applications. To prevent such possible trouble, the following rules are recommended:

- (1) Don't start a name with "_ _" (2 underscores).
- (2) 'Pro-Server EX' internally uses UNICODE character strings for name data, but on the other hand, many applications uses multi-byte character strings. Thus, character strings are frequently converted between UNICODE and Multi-byte. Depending on the OS language you are using, characters may be garbled. In this case, 'Pro-Server EX' does not work properly, so it is recommended to avoid using machine-dependent characters as much as possible.
In addition, use only alphanumeric characters when using DDE function of Excel. Katakana or double-byte characters exit the Excel DDE function (due to Excel specifications).

■ Accessing the backup SRAM

While 'Pro-Server' is accessing the backup SRAM, the status data of "0500h" is stored in the mode of the control address when the display unit has received a request for transfer from the backup SRAM to the CF card.

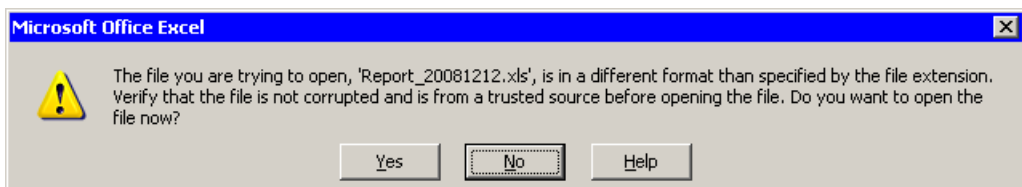
In this case, perform the transfer again to the CF card.

■ BCD Conversion

BCD16→BIT	Convert to 0 and 1 per 16 bits
BCD16→BCD16, BCD32	No conversion
BCD16→16BIT	Convert from BCD to Binary at read
BCD16→String	Convert from BCD to Binary at read and write to character strings under text mode at write
BCD16→ACTION	Convert from BCD to Binary at read
BCD32→BIT	Convert to 0 and 1 per 32 bits
BCD32→BCD16, BCD32	No conversion
BCD32→16BIT	Convert from BCD to Binary at read
BCD32→String	Convert from BCD to Binary at read and write to character strings under text mode at write
BCD32→ACTION	Convert from BCD to Binary at read
BIT→BCD16	Extend bit to 16-bit unit
BIT→BCD32	Extend bit to 32-bit unit
16BIT→BCD16, BCD32	Convert from Binary to BCD at write
32BIT→BCD16, BCD32	Convert from Binary to BCD at write
String→BCD16, BCD32	Read character strings at read and convert from Binary to BCD at write

■ Note when using 'Microsoft Excel 2007 or later

Under the following conditions, opening a file created in “Microsoft Excel 2007’ or later produces a warning message. Click [Yes] to open the file.



- Upload of GP log data
- Excel Recipe Download
- Writing Data in Excel Book
- Automatic upload of GP filing data

■ When renewal of a screen data, reading processing, etc. are delayed

In a SP-5B40/WinGP node, SP-5B10 node, GP4000/LT4000 Series node, GP3000 Series node, and LT3000 node, write-to-device processes take precedence over read processes such as screen update and sampling.

Therefore, when a large quantity of data is written to a Node, or when multiple Nodes try to write data (even if in small quantity) to a Node at a time, read processes may be delayed because they have a lower priority.

This problem occurs via a network as well.

Display unit's screen data is not updated if the read process is delayed.

Referring to the communication cycle time^{*1}, tune the amount of data to write via the network.

- *1 Communication cycle time is the time between data request from the display unit to the device and acquisition.

NOTE

- If writing a large quantity of data is required, Pro-Server EX provides a "Writing in progress" indicator lamp or message by turning ON a certain device bit before start of writing, and by turning it OFF after completion of writing, to inform the operator of a delay caused by writing.
- When writing data from multiple Nodes at a time is required, the method that writes the data from each Node into the internal device first and then writes the integrated data into the device of the device/PLC may improve the performance.

■ If you want both 'Pro-Server EX' and 'WinGP' to reside on the same machine

When 'WinGP' is installed on PS Series, PL Series, or PC/AT compatible machine and you install 'Pro-Server EX' (version 1.10 or later), the WinGP SDK is removed. When you install 'WinGP' after installing 'Pro-Server EX', the WinGP SDK is not installed. However, you can use applications that use the WinGP SDK by setting up the network nodes on 'Pro-Server EX'.

■ About WinGP versions

When you cannot use the following Pro-Server EX features on the WinGP node, upgrade the WinGP node's runtime version to GP-Pro EX Ver.3.01.200 or later.

- In Pro-Studio EX, from the [Tools] menu [Save GP Screen]
- Action [Upload of GP JPEG Data] action
- Excel forms action [Log Data in GP Area]-[Data Type]-[GP Screen Data (JPEG)]

■ Real variables on 'GP-Pro EX'

In 'Pro-Server EX', you cannot use real variables on 'GP-Pro EX'. Therefore, you cannot use "R_" when specifying the device address in address format.

■ OPC Server for Pro-Server EX

- In the OPC configuration tool, LT4000 Series are treated as GP4000 Series nodes, and LT3000 Series are treated as GP3000 Series nodes.
- While connected to 'OPC Server for Pro-Server EX', do not perform a reload using 'Pro-Server EX'. To change the network project, shut down all connections to the 'OPC Server for Pro-Server EX' before performing a reload.
- While reloading a network project file on a network PC to Pro-Server EX, you cannot use 'OPC Server for Pro-Server EX'. Save the network project file you want to reload to the same PC where 'OPC Server for Pro-Server EX' is installed.

■ MES ACTION

- To use MES ACTION, you need to install SQL Server 2005 or 2012 and attach the MES Action database. For details, please refer to 'Before using MES ACTION' in the "MES Action Reference Manual".
- When upgrading the MES ACTION version, backup the MES ACTION database before installation.
- After upgrading the MES ACTION version, before using MES ACTION, from the Pro-Server EX installation folder run "DbInstall_No2.sql" in the "MESActionDB" folder.
- For models without a CF/SD Card slot, if you use MES Action to work with CF features, an error is generated.
- MES ACTION cannot be copied or pasted on the 'Pro-Studio EX' feature setting screen.
- For "MES Action: GP CF-card Alarm-History-File Collection", once the table to which data is output is deleted, the output table may not be recreated even if the ACTION is activated. In this case, navigate through the 'Pro-Server EX' installation folder → the Content folder → the ProCfAlarm folder to find the appropriate Action GUID file and delete it.
- Symbols imported from 'GP-Pro EX' have fixed [Data Type] and [No.], which cannot be edited.

■ Device Addresses When Omitting Bit Position

If a device address is specified as Bit type without specifying its bit position, the first bit represents the bit position.

37.3 Restriction on Protocol

■ Special Protocol

'Pro-Server EX' does not support the following 12 types of special protocols when connecting to GP Series.

- MITSUBISHI MELSECNET/10
- OMRON SYSMAC-CS1 (ETHER)
- HITACHI HIDIC H (ETHER)
- Siemens S7-200 via MPI
- Siemens S7-300/400 via MPI
- SIEMENS S7-300/400 (ETHER)
- AB Slc500 DH485
- Allen Bradley SLC5/05 (ETHER)
- Schneider TSX via UNI-TELWAY
- Schneider Modbus TCP (ETHER)
- Schneider Modbus RTU 1:n comm.
- AB ControlLogix (EtherNet/IP)

■ Indirect Devices

Pro-Server EX cannot use indirect devices set up in 'GP-Pro EX'.

■ Restrictions when GP-Pro EX uses the tag import feature

- When reading from or writing to multiple devices that are non-consecutive, and device addresses use tags, communication takes longer compared to not using tags.
- You cannot cut or copy multiple selections of nodes for tags imported in Pro-Studio EX. Select one at a time to cut or copy.

■ Using Byte-type Variables

Byte-type variables created for use with the protocols below are handled in word units on Pro-Server EX.

For example, for a 11 byte variable, the variable size on Pro-Server EX is 12 bytes (6 words), whereas the variable size on the device/PLC is 11 bytes.

As a result, if you map a 11 character string from Pro-Server EX an error occurs as the variable size on the device/PLC is exceeded.

When using byte-type variables, set them up with an even number of bytes.

- Beckhoff Automation GmbH, TwinCAT ADS/AMS
- CoDeSys Automation Alliance, CoDeSys Ethernet
- CoDeSys Automation Alliance, CoDeSys SIO
- Fuji Electric Co., Ltd., MICREX-SX Series Ethernet
- Fuji Electric Co., Ltd., MICREX-SX Series SIO
- Omron Corporation, CS/CJ/NJ Series EtherNet/IP
- Rockwell Automation, Inc., EtherNet/IP
- Siemens Building Technologies, SAPHIR SIO

■ Reading from and writing to bit devices

You cannot read from or write to bit devices with the following protocols.

- Rockwell Automation Inc, DH-485
- IEC Standard, IEC 60870-5-101

■ Reading and Writing Bits to Word Addresses

When using the following device/PLCs with either word devices that support bit access, or word-type tags that support bit access, you cannot read or write multiple points of bits..

Manufacturer	Driver Name	Target Device
Siemens AG	SIMATIC S7 MPI Direct	Data Block (DB)
		Input (I/E)
		Output (Q/A)
		Marker (M)
		Variable (V)
	SIMATIC S7 3964 (R)/RK512	Data Block (DB)
		Input (I/E)
		Output (Q/A)
		Marker (M)
	SIMATIC S7 Ethernet	Data Block (DB)
		Input (I/E)
		Output (Q/A)
		Marker (M)
	SIMATIC S5 CPU Direct	Input Relay (I)
		Output Relay (Q)
		Internal Relay (F)
PROFIBUS International	PROFIBUS DP Slave	Data Block (DB)
		Input (I/E)
		Output (Q/A)
		Marker (M)
		Direct I/O Input (PI)
		Direct I/O Output (PQ)
Fuji Electric Co.,Ltd.	MICREX-F Series SIO	Input Relay(B)
		Supplementary Relay(M)
		Special Relay(F)
		Differential Relay(D)
		Keep Relay(K)
		Announce Relay(A)
		Link Relay(L)

■ Restrictions When Accessing 64-bit Device

In 'Pro-Server EX', when accessing a 32-bit device using double-precision floating point, the access target is 2 sequential 32-bit devices.

Refer to the following access order regarding Low/High placement of the data when accessing 32-bit device of Device/PLCs.

- Via GP Series Node
Access in the order of Low to High.
- Via SP-5B40/WinGP Node, SP-5B10 Node, GP4000/LT4000 Series Node, GP3000 Series Node or LT3000 Node
Access in the order of High to Low.

Protocol name in GP Series Node	Protocol name in SP-5B40/WinGP Node, SP-5B10 Node, GP4000/LT4000 Series Node, GP3000 Series Node or LT3000 Node	Target Device Name
Fuji Electric Co., Ltd. MICREX-F Series	Fuji Electric FA Components and Systems Co., Ltd. MICREX-F Series SIO	BD
		DI
		TR
		TS
		W9.
		CR
		CS
		W33. W34.
Allen Bradley ControlLogix DF1	Rockwell Automation, Inc. DF1	REAL

■ Sequential Address Specification

'Pro-Server EX' has restrictions when specifying sequential addresses in the following protocols required for connecting to GP Series.

Yokogawa Electric Corp. FACTORY ACE 1:1 communication

Yokogawa Electric Corp. FACTORY ACE 1:n communication

Yokogawa Electric Corp. FA-M3(ETHER)

Sequential specification is not available in X and Y devices.

Sequential specification in the same link number is available in L and W devices.

Hitachi Industrial Equipment Systems Co., Ltd. HIDIC H Series

Hitachi Industrial Equipment Systems Co., Ltd. HIDIC H2 Series

Sequential specification is not available in X, Y, WX and WY devices.

SIEMENS S5 90-115 Series

SIEMENS S5 135-155 Series

Sequential specification in the same Data Block is available in SIEMENS S5 3964(R) D, X devices.

Sequential bit specification is not available in I, Q and F devices.

Sequential bit specification is not available in DB*W(* shows 1 to 60) device.

Sequential bit specification is not available in I, Q, M, SM, V, T and C devices.

Sequential bit specification is not available in I, O, M and DB*W(* shows 2 to 60) devices.

Sequential bit specification is not available in I, O, M and DB*W(* shows 2 to 60) devices.

Allen Bradley SLC500 Series

Allen Bradley PLC-5 Series

Sequential specification in the same file number is available in PLC devices of Allen Bradley.

■ Access Using Device Monitor or Device Access API

The following protocol ST devices have 41-word unit areas. When other area than the 41-word unit areas is accessed using the device monitor or device access API, therefore, the ST device does not work normally.

- Rockwell Automation Inc., DH-485

- Rockwell Automation Inc., Ethernet/IP

- Rockwell Automation Inc., DF1