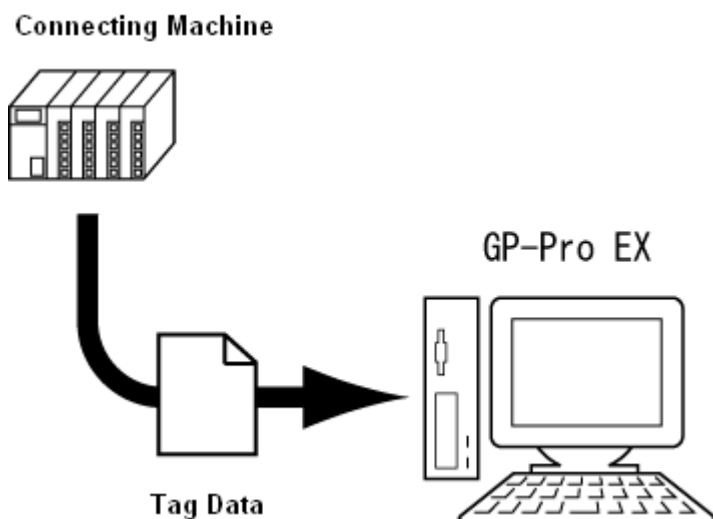


Using Device/PLC Tags

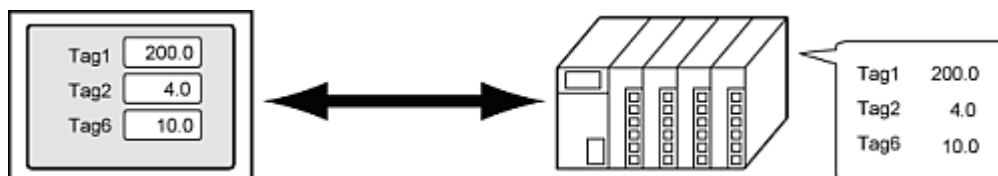
Using Device/PLC Tags

You can access a device using a tag configured on the device/PLC.



To use a tag for the device/PLC, import tag data into GP-Pro EX.



You can use the same tag names and data format used in the device/PLC for the imported tags for data collection (sampling), D-Script/Global D-Script and others.



NOTE

- You can import Siemens AG's TIA Portal Ethernet tag data when using GP-Pro EX Ver.4.05.100 or later and when the display unit is IPC series, PC/AT compatible or SP5000 Series Open Box (SP-5B40).
- You can check if the imported tags are identical to the tags on the device/PLC.
 [Checking Tag Consistency](#)
- You can see the current values of tags on the Device Monitor.
 Refer to GP-Pro EX Reference Manual, "Monitoring the Value of Device Addresses (Device Monitor)"

What is Tag?

Tag is a name you assign to an address of device/PLC. It is also called "variable" or "symbol" depending on the manufacture of the device/PLC.

You must configure the tag using a configuration tool on the device/PLC. GP-Pro EX can import tag names up to 255 characters (single and double-byte characters combined).

Supported drivers

When any of the following series is set up in the [System Settings], [Device/PLC] node, you can use the Import Tag function.

| Manufacturer | Series | Tag Data |
|-----------------------------|--|----------------------------|
| Beckhoff Automation GmbH | TwinCAT ADS/AMS | TwinCAT TPY File (.tpy) |
| CoDeSys Automation Alliance | CoDeSys V3 Ethernet | CoDeSys Symbol File (.xml) |
| Siemens AG | SIMATIC S7 MPI Direct SIMATIC S7 Ethernet | Project file (.S7P) |
| | TIA Portal Ethernet | Project file (.ap**) *1 |
| Mitsubishi Electric | iQ-R/F Ethernet | Global label file (.csv) |

*1 "**" refers to the TIA Portal version. TIA Portal supports STEP7 V11 to V13.

Data Types You Can Import

The tag data types you can import to GP-Pro EX depend on the driver you are using.

Please refer to the "Supported Devices" section in the corresponding GP-Pro EX Device/PLC Connection Manual

 [Procedure - Using Device/PLC Tags](#)


Procedure - Using Device/PLC Tags

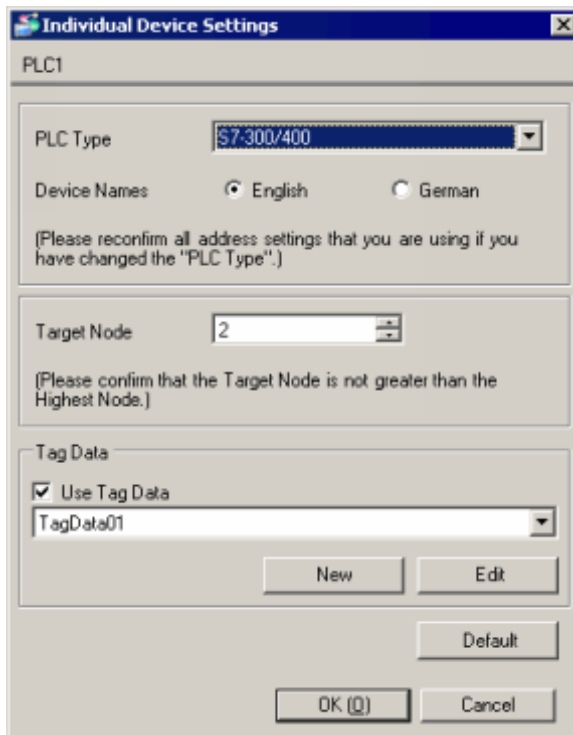
You can import tags using [Individual Device Settings].

The following procedure uses Siemens AG's SIMATIC S7 MPI direct connection driver as an example.

When tag data is updated or added on the Device/PLC, re-import tag data into GP-Pro EX.

Importing / Re-importing

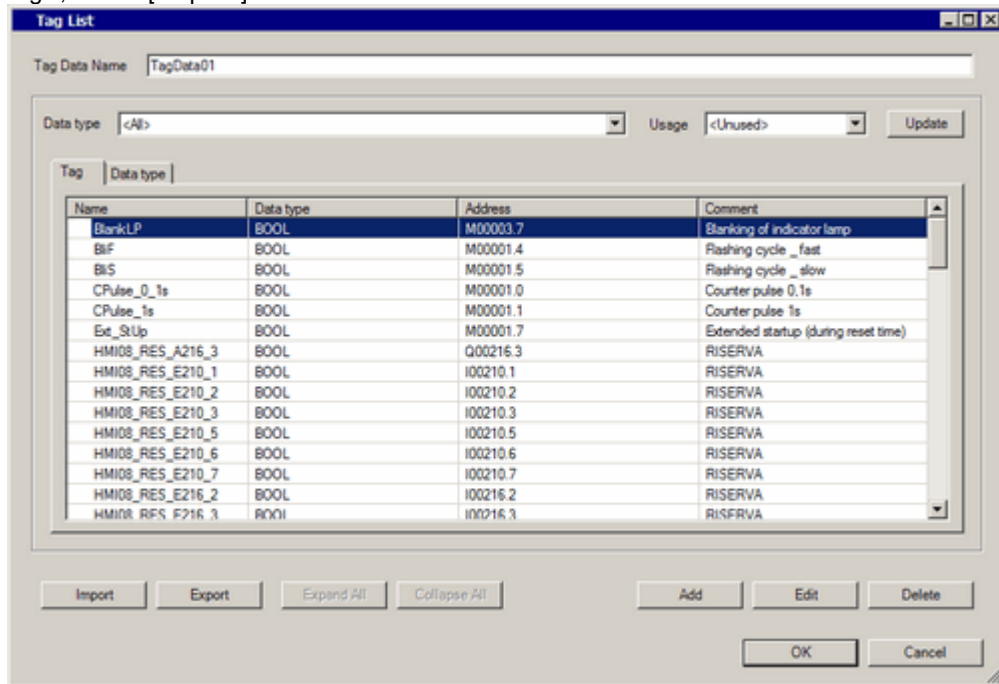
1. In the [Device-Specific Settings] (accessible from [Project] menu, [System Settings], [Device/PLC]), click the button  for the device/PLC for which you want to use a tag.
2. Select the [Use Tag Data] check box, and click either [New] or [Edit], as required.



NOTE

- o Select [New] when you want to create new tag data, or update existing (already imported into GP-Pro EX) tag data.
Select [Edit] when adding new tags to the list of existing tag data. When using Siemens AG's TIA Portal, [Edit] only allows you to delete tags or reimport. If tags are deleted from the project file (.ap**) that is reimported, then those same tags are also deleted from the existing tag data.
3. When updating existing tag data or adding new tags, to make sure you do not exceed the upper limit for imported tag data, first delete any unused tag data. After deleting unused

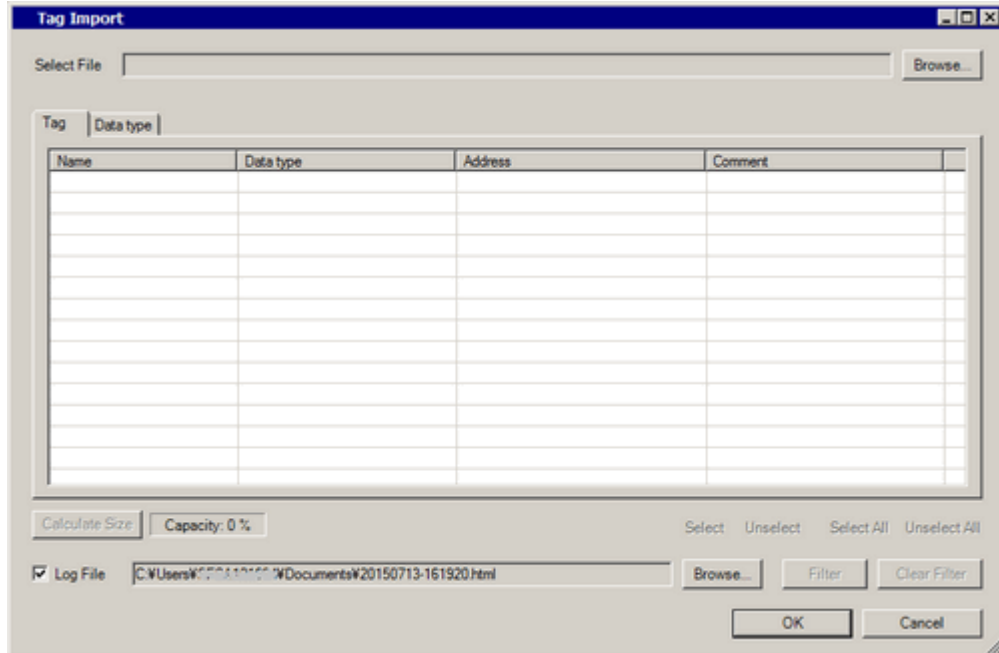
tags, click [Import].



NOTE

- o Set [Usage] to [<Unused>] so you can check for unused tags. Select the tags displayed in the list and click [Delete] to remove the unused tags.

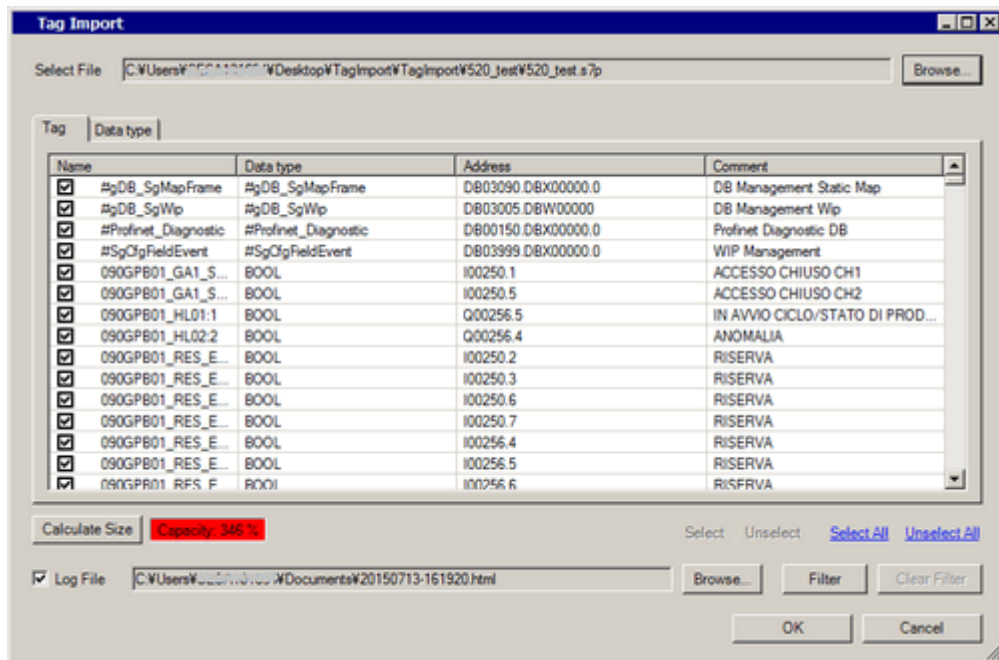
- 4 To the side of the [Select File] field, click [Browse] and select the project file (*.S7P) for the device/PLC.



NOTE

- o If the project file contains multiple programs, a dialog box for program selection appears. Select the program you want to import and click [OK].
- o Items using data types are filtered and imported.

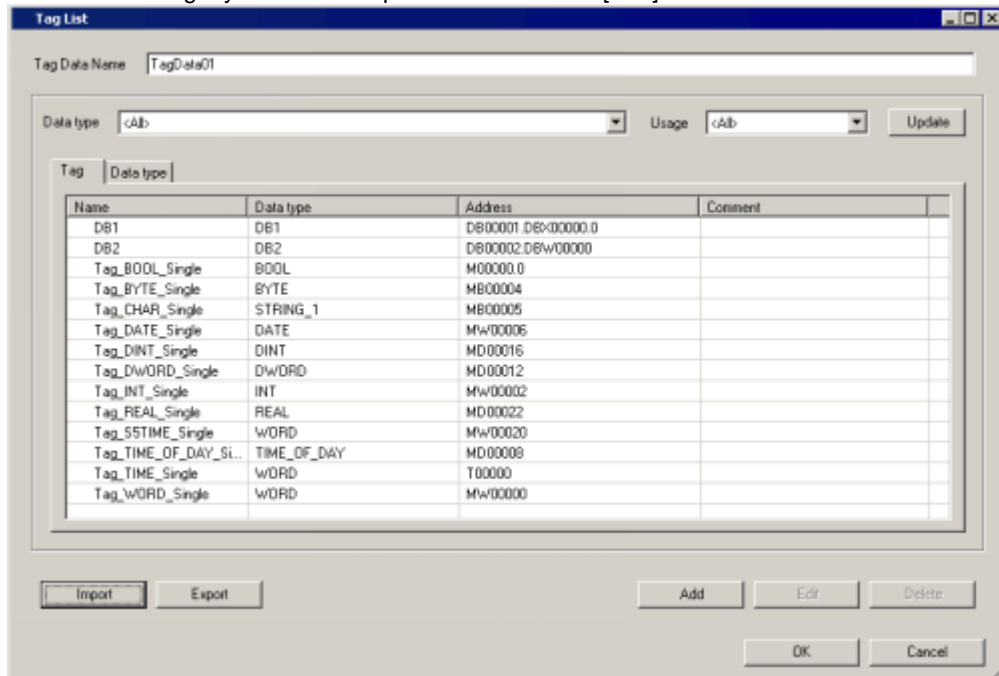
- A list of defined tags appears. Select the tags you want to import. Then click [OK] to import the tags.



NOTE

- If you want to import, the only symbol in the tag name you can use is the underscore (_).
When the tag name includes any other symbols, rename the tag before importing.

- Review the tags you have imported and click [OK].

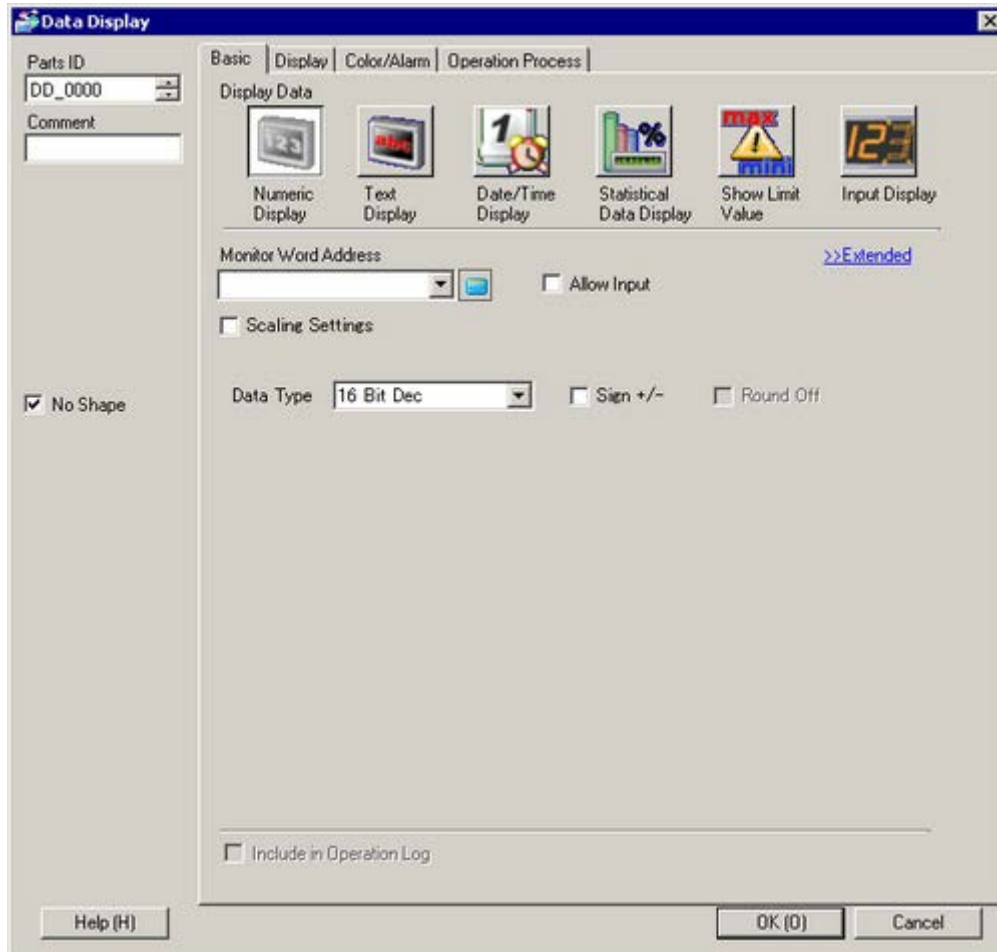


- When tag data used on the device/PLC changes, run an error check and edit addresses that become [Undetermined].

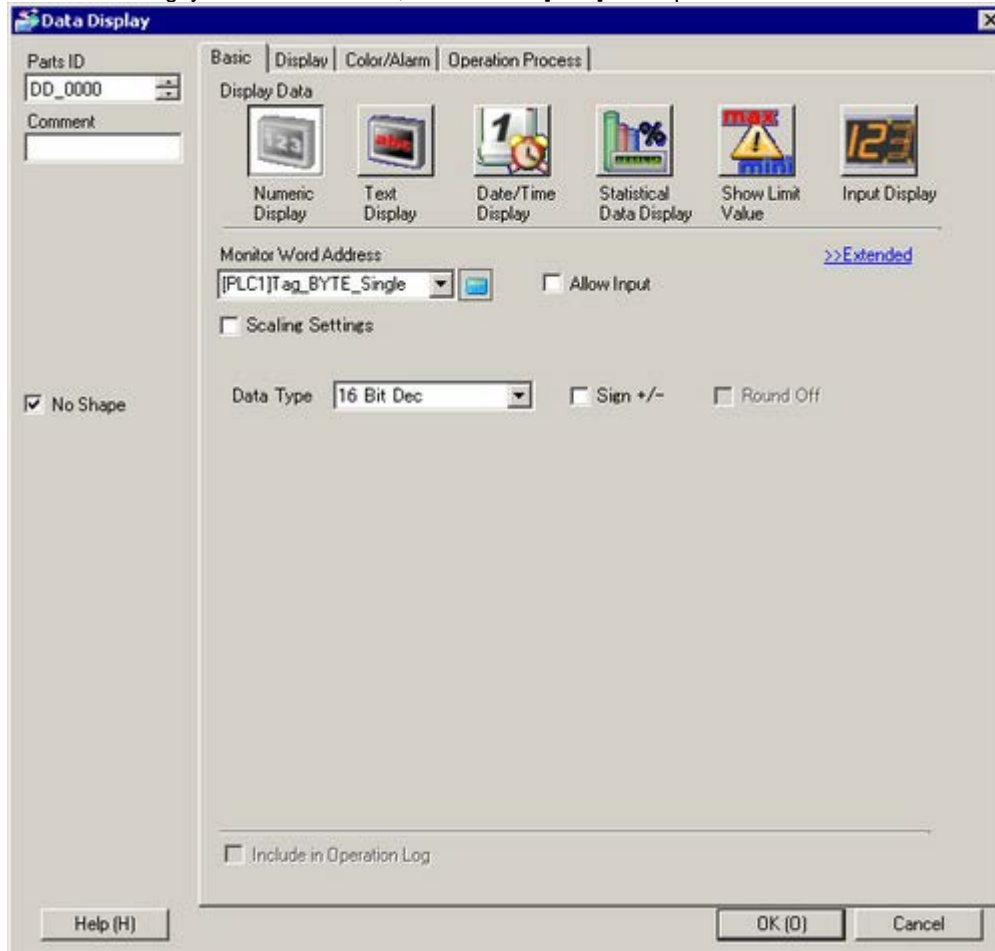
Setup Procedure

Specify a tag for an address. The following procedure shows how to setup a tag for [Monitor Word Address] on the display unit while Numeric Display is used.

1. Open the [Data Display] dialog box.



3. Select the tag you want to use, and click [Ent] to input an address.



Checking tag consistency

When using Siemens AG, with system variables you can check if the tags you are importing into a project file in the display unit are the same as the tags in device/PLC.

You can check tag consistency while the display unit is operating.



The check result is saved in a CSV file.

NOTE

- If the same tag is used in multiple places, such as common settings and parts, it is checked only once.
- The entire array/structure is checked even when a part of it is used.
Except for the String type arrays, for which the check is performed for each array elements.
- If you have specified tags for [Base Address] and [Offset Value Specification Address] in the Data Display, only the tag specified for the [Base Address] is checked.

Operation Procedure for Checking Tag Consistency

To check consistency, please follow these steps. For more information about system variables, please see the following.

- #H_TagConsistencyTrigger, #H_TagConsistencyCheckCancel
 Refer to GP-Pro EX Reference Manual, "Bit Type - #H System Variables"
 - #H_TagConsistencyConfig, #H_TagConsistencyStatus
 Refer to GP-Pro EX Reference Manual, "Word Type - #H System Variables"
1. Using the #H_TagConsistencyConfig, enter the consistency check settings, including the tag range and the location where the result is saved.
Please use the following table for reference:

| Bit | Value | Description |
|------------------------|-------|--|
| 0 | 1 | Location of check results: USB storage |
| 4 | 1 | Setting for check results if file already exists: Do not overwrite |
| 8...9 | 00 | Date format for saved check results: yy/mm/dd |
| 16...17 | 00 | Items for consistency check: All tags imported into project file |
| 24...27 | 0000 | Language for check results: English |
| Other than those above | 0 | Reserved |

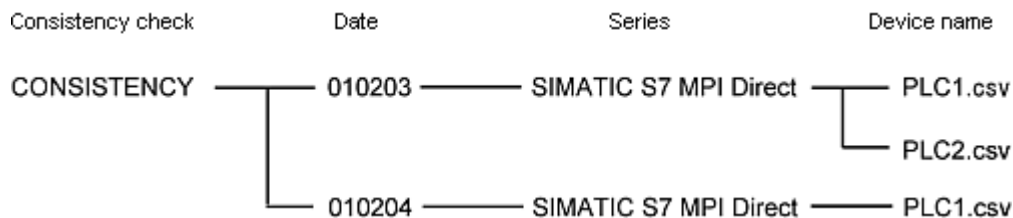
2. Turn on the #H_TagConsistencyTrigger. The consistency check begins.
3. When the consistency check is complete, the bit 1 in the #H_TagConsistencyStatus turns ON. Review the check result, and turn off the #H_TagConsistencyTrigger.

NOTE

- o If you want to stop the consistency check while it is running, turn ON the #H_TagConsistencyCheckCancel.
- o If you stop the consistency check while it is saving the check result, it outputs a part of the check result.

Saving Check Result

When you check tag consistencies, a folder called "CONSISTENCY" is created in the location which is specified by the bit 0 of the system variable #H_TagConsistencyConfig, and the check result is saved using the following folder structure.



| Name | Type | Description |
|-------------|--------|---|
| Date | Folder | The system creates a new folder for each day you run the consistency check. The folder name is determined according to the data format specified in the bit 8 and 9 of the #H_TagConsistencyConfig. |
| Series Name | Folder | The system creates a folder with the name of the device/PLC's series you have checked. |
| Device Name | File | The system creates a folder with the name of the device/PLC you have checked. |

NOTE

- o If there is any character that cannot be used for a folder or file name, or cannot be converted, it will be replaced with an underscore (_). If the file name created as a result of the conversion is already used by other file, "~*" (* is a number) is appended to the file name.
- o Characters that cannot be used in a folder or file name: \/:?*"<>|
- o Characters that cannot be converted from GP-Pro EX's device name (Unicode) to the output language (specified by the bit 24 to 27 of #H_TagConsistencyConfig) for the check result

- o When you are using a language other than the system language, file names may not display the characters you specified.
- o Series names are in English only.

Formatting Check Result

After the tag consistency check, the check result is saved in a CSV file. The image below shows how the data appears when opened in Microsoft Excel.

Header Information

| | A | B | C | D |
|---|--------|------------|---|---|
| 1 | Date | 2000/10/10 | | |
| 2 | Time | 10:10:10 | | |
| 4 | Series | MemoryLink | | |
| 5 | Plc | PLC1 | | |

Date: The date when the file is saved (according to the data format specified in bits 8 and 9 of #H_TagConsistencyConfig.)

Time: The time when the file is saved.

Series: The name of the series for which you performed the consistency check.

Plc: The name of the external device for which you performed the consistency check.

Data

| 6 | No. | Error code | Tag name | Error message |
|---|-----|------------|----------|---|
| 7 | 1 | RHAA000 | aaa | Tag is not registered. (Tag Name: A) |
| 8 | 2 | RHAA001 | bbb | Different variable type (Pro-Ex: BYTE/PLC:WORD) |


No.: The error number.

Error code: The error code.

Tag name: The name of the tag where the error occurred.

Error message: Message for the error that occurred.

For details about error codes and error messages, please refer to GP-Pro EX Reference Manual's display-related errors.

 Settings common to all Display models

For details about error codes and error messages, specific to the device/PLC, please refer to "Error Messages" in the GP-Pro EX Device/PLC Connection Manual.

NOTE

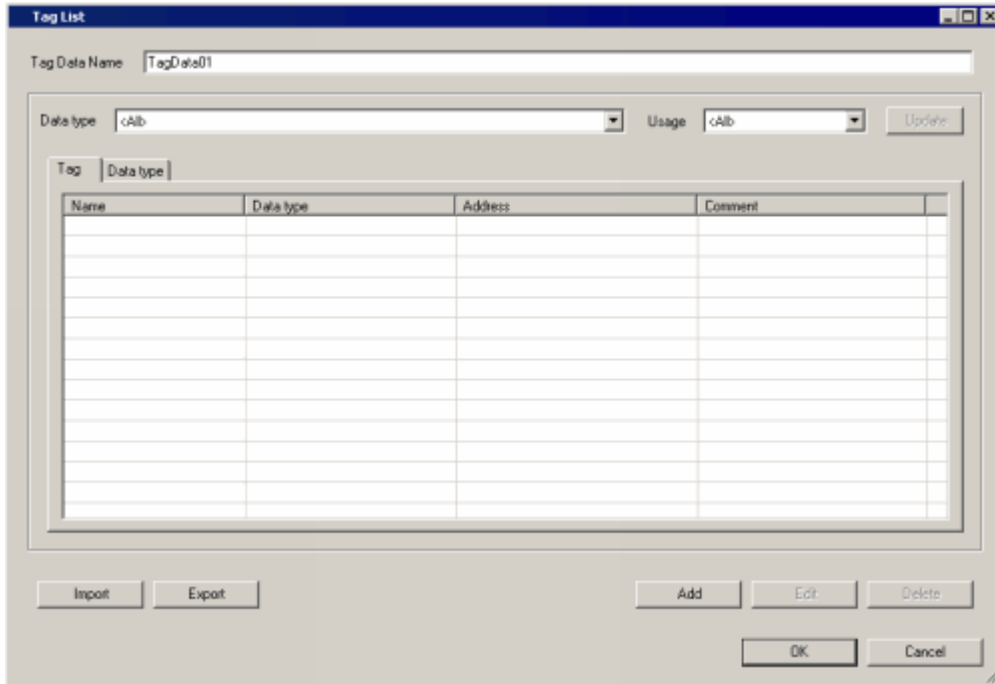
- o The screen shows up to 1,000 errors. The message "There are more than 1000 errors" appears when there are more than 1,000 errors. In addition, the consistency check status (the bit 17 of the #H_TagConsistencyStatus) turns ON.

- The system checks the consistency of tag names in Unicode, and converts the tag names to the output language for the check result (specified by the bit 24 - 27 of the #H_TagConsistencyConfig). If the system finds any character that cannot be converted, it will be replaced with an underscore (_).
- If the GP-Pro EX's display language is Japanese, error messages are displayed in Japanese. Therefore, if a language other than Japanese is specified in the bit 24 to 27, error messages will not be displayed properly. Select Japanese in bits 24 to 27. If the GP-Pro EX's display language is not Japanese, error messages are displayed in English, regardless of the language specified in the bits 24 to 27.

Restrictions

- If you switch to offline mode or transfer screens during consistency check, the consistency check is canceled.
- You cannot check consistency on indirect devices.
- If the tags are not imported into project file, the consistency check will not work.

Import Tag Settings Guide



Tag Data Name

Specify the Tag Data Name in 32 characters. Tag settings are stored in tag data.

Filter

Specify the tags to list.

Data Type

Select a data type to display. Displays tags with the selected data type only.

Usage

Select the tags to display from [All], [Use], and [Unused].

Update

[Data Type] and [Usage] conditions define the display list.

List

Displays tags. Displayed information varies depending on the tags. [Tag] and [Data Type] tabs change the display contents.

Import

Imports the tag data from device/PLC into a project file for GP-Pro EX. Additionally, if you are using any driver other than the Siemens AG TIA Portal Ethernet driver, You can import a tag file in XML format exported from another project file into the currently open project.

Export

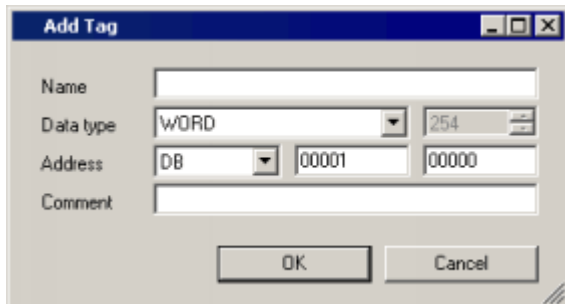
Exports the device/PLC's tag data to a project file in GP-Pro EX, as an XML file.

MEMO

- Displays when using any driver other than the Siemens AG TIA Portal Ethernet driver.

Add/Edit

Used to add or edit a tag. Enter or edit the [Name], [Data Type] and [Address]. The tag name must be 255 characters or less.

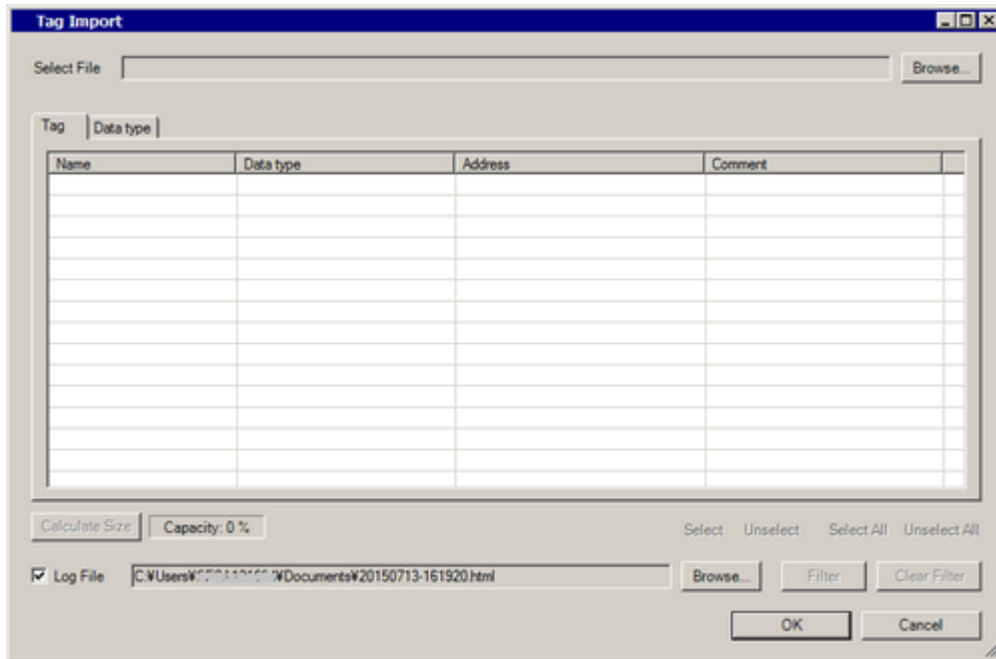


MEMO

- Displays when using any driver other than the Siemens AG TIA Portal Ethernet driver.

Delete

Deletes the selected tag.



Select File

Select a file to import.

MEMO

- When using Siemens AG's TIA Portal Ethernet, you can import only one project file (.ap**) to GP-Pro EX. When importing tags into multiple device/PLCs, select the same project file for all the device/PLCs.

List

Displays a list of tags that are defined in the file to import.
[Tag] and [Data Type] tabs change the display contents.

Calculate Size

Use this field when the [Capacity] exceeds 100% (after you use check boxes or filter settings to change the tag data to import).

Calculates the total size of tag data in the project file (*.prx) when tag data selected in the [Select File] field is imported. You can check the calculation results in the [Capacity] field.

NOTE

- Displays when using the Siemens AG driver.

Capacity

Displays the total size of tag data selected in the [Select File] field plus tag data already imported into the project file (*.prx). The total size of tag data you can import is up to 100%.

NOTE

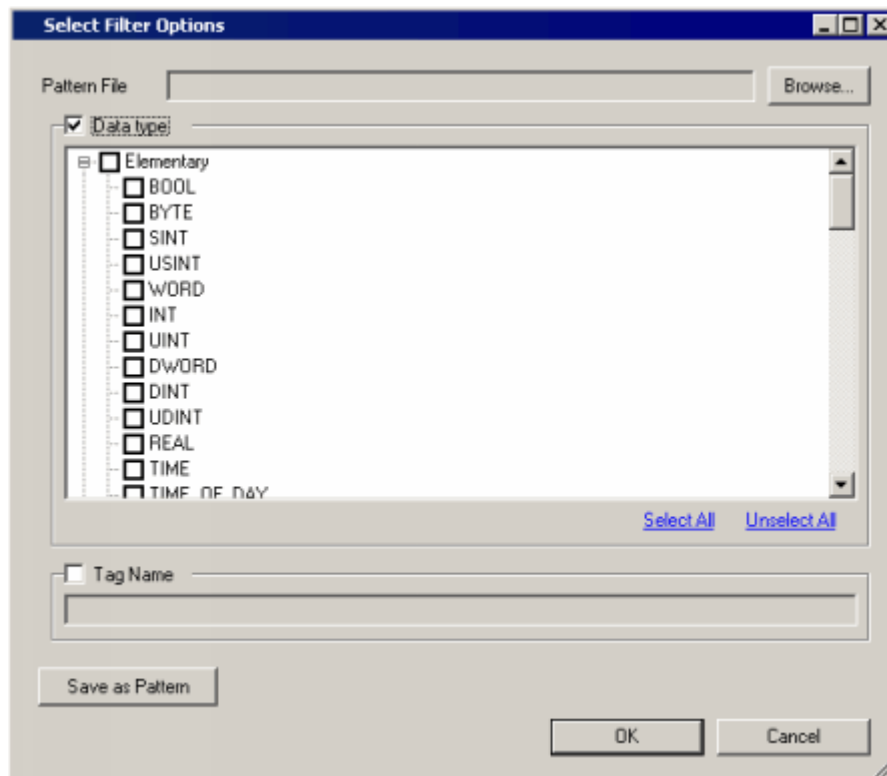
- Displays when using the Siemens AG driver.

Log File

Select this option if you want to save the result to a log file (html file). Specify the location where the output file is saved.

Filter

Select to filter the tag list.

**Pattern File**

Select a pattern file to refine your search using the same conditions. You can create a pattern file using [Save as Pattern].

Data Type

Select the tags you want to display in the list.

Tag Name

Select to list the tags that contain a specific name.

Save as Pattern

| |
|--|
| Select to save your refine conditions as a Pattern File. |
| Clear Filter |
| Deletes the filter setting. |

Limitations When Importing Device/PLC Tags

- The following features are not supported:
 - Ethernet Multilink
 - Passthrough
 - Ladder monitor