UbiGEM Driver
Configuration Tool Manual

Contents

UbiGEM Configuration Tool

1. Summary

The UbiGEM Tool is a tool that provides customers with a simple and intuitive configuration graphical user interface along with a wrapper to configure a GEM environment (a widely used standard communication protocol in the semiconductor and electronics assembly industries).
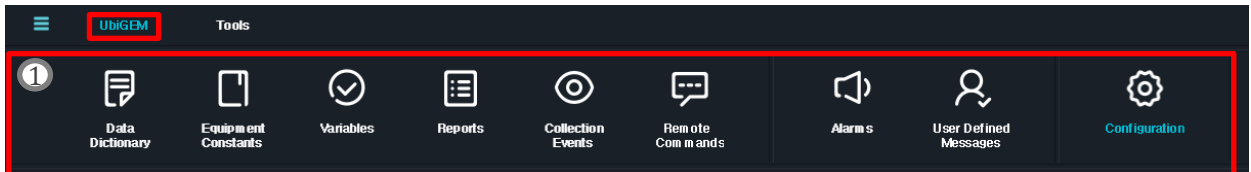
2. System Requirements

- Software requirement
  - -. Microsoft .NET Framework 4.5

3. Menu
3.1 Tab Menu
1) UbiGEM

- UbiGEM menu list

  1) Data Dictionary : set data dictionary items.
  2) Equipment Constants : set equipment constant items.
  3) Variables : set variable items.
  4) Reports : set report items.
  5) Collection Events : set collection event items.
  6) Remote Commands : set remote command and enhanced remote command Items.
  7) Alarms : set alarm items.
  8) User-defined Messages : view a standard message item or set an user-defined message.
  9) Unit : set unit items that will be selected as units of data dictionary.
  10) Configuration : configure SECS / GEM communication and logs.
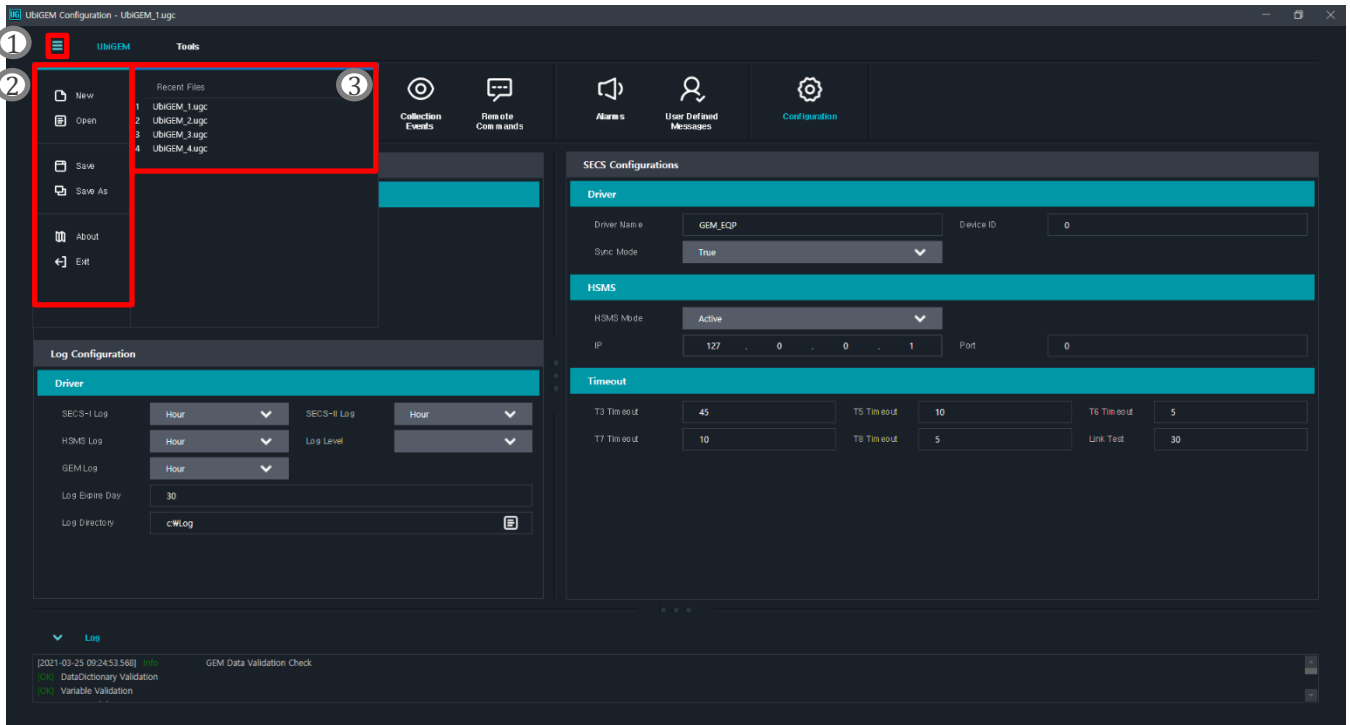
3. Menu
 3.1 Tab Menu
  2) Tools

• Tool menu list

   1)   C# Helper : create configuration items in a C# .cs file.
   2)   C++ Helper : create configuration items in a C++ .h file.
   3)   VB .Net Helper : create configuration items in a VB .vb file.

3. Menu
3.2 Application Menu

- **Application menu list**

    1) **Application menu button**
        Launch an application menu window.

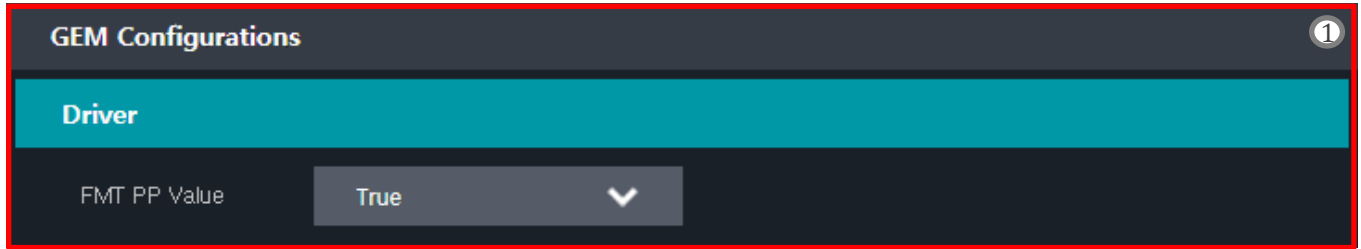   2) **Application menu list**
        – New : create a new project.
        – Open : open an existing project.
        – Save : save current project.
        – Save As : save current project as.
        – About : open a description window for the UbiGEM configuration tool.
        – Exit : exit the program.

    3) **Recent files**
        Open a project list (double-click to load a previous project).
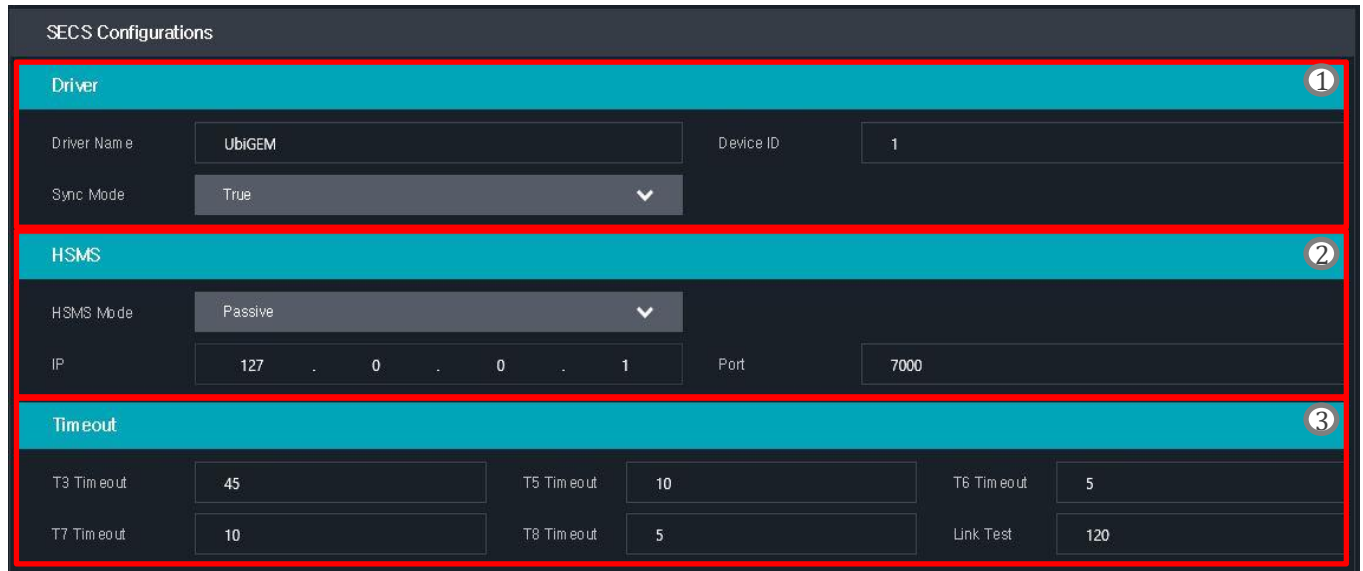
4. Configuration
1) GEM Configuration

- GEM communication setting items

1) FMT PP Vale : Transmission structure setting of Formatted Process Program
   - True   : Send only Value
   - False   : Send with Name/Value

4. Configuration
2) SECS Configuration

- SECS communication setting items

1) Driver
  – Driver Name : set a driver name.
  – Driver ID : set a driver ID.
  – Sync Mode : enable or disable the synchronization mode.

2) HSMS
  – HSMS Mode : is set as active or passive mode.
  – IP / Port : set an IP address and a port number.

3) Timeout
  – Set the value (millisecond) of each timeout item.

4. Configuration
 3) Log Configuration

- GEM / SECS log configuration
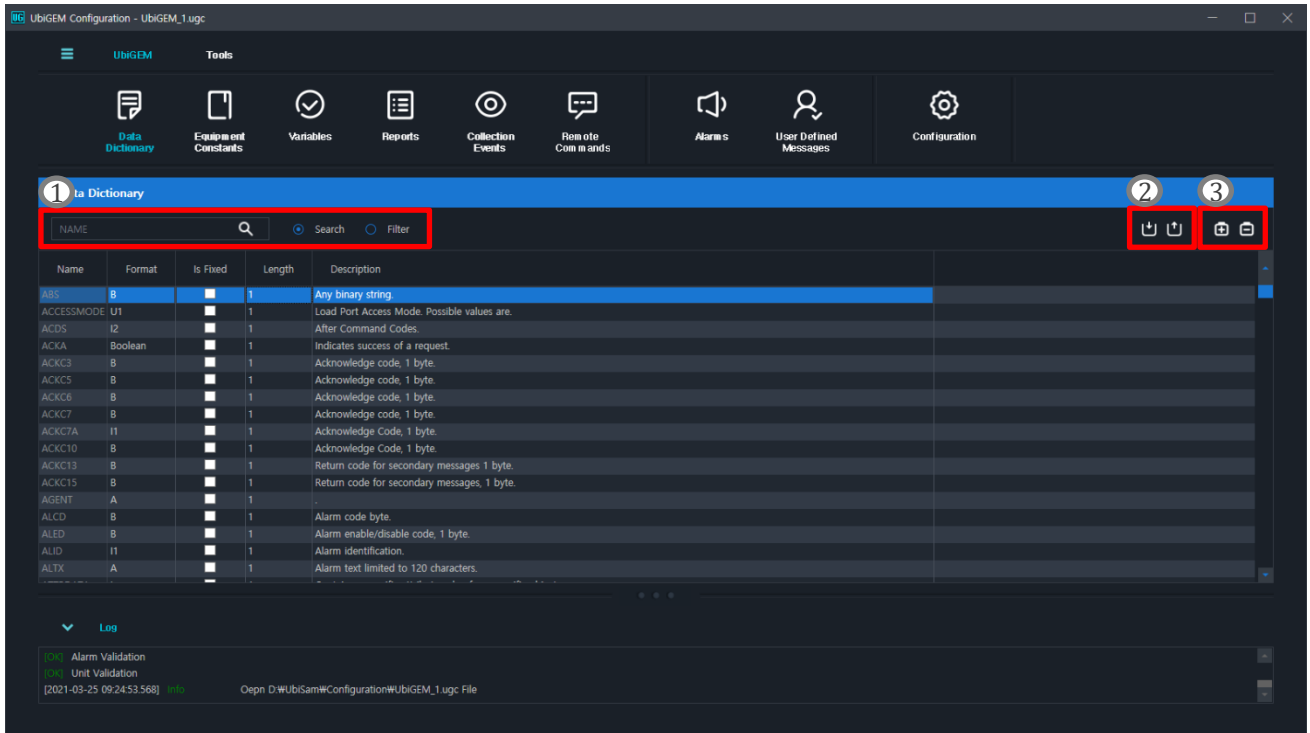
    1) GEM / SECS Log
        – SECS-I LOG : set a SECS-I log file group.
        – SECS-II LOG : set a SECS-II log file group.
        – Driver Log : set a driver log file group.
        – Log Level : set SECS log levels.
        – GEM Log : set a GEM log file group.
        – Log Expire Day : set a SECS log deletion date (days).
        – Log Directory : set a SECS log directory.

5. Data Dictionary
1) Search, add and delete

- **Data dictionary list**

    1) Search for items
       - Search: find items by name.
       - Filter: filter items by name.
       - The filter function is initialized when searching without data in the search window.

    2) .cvs import / export buttons
       – When exporting, check if all predefined data items exist.
       – When exporting, you can choose to delete all existing items, insert the exported data, retain the existing data and update with the exported data.

    3) Add / delete buttons
       – A new item can not be added if its name is missing.
       – A predefined item can not be deleted.

5. Data Dictionary
2) Detail settings
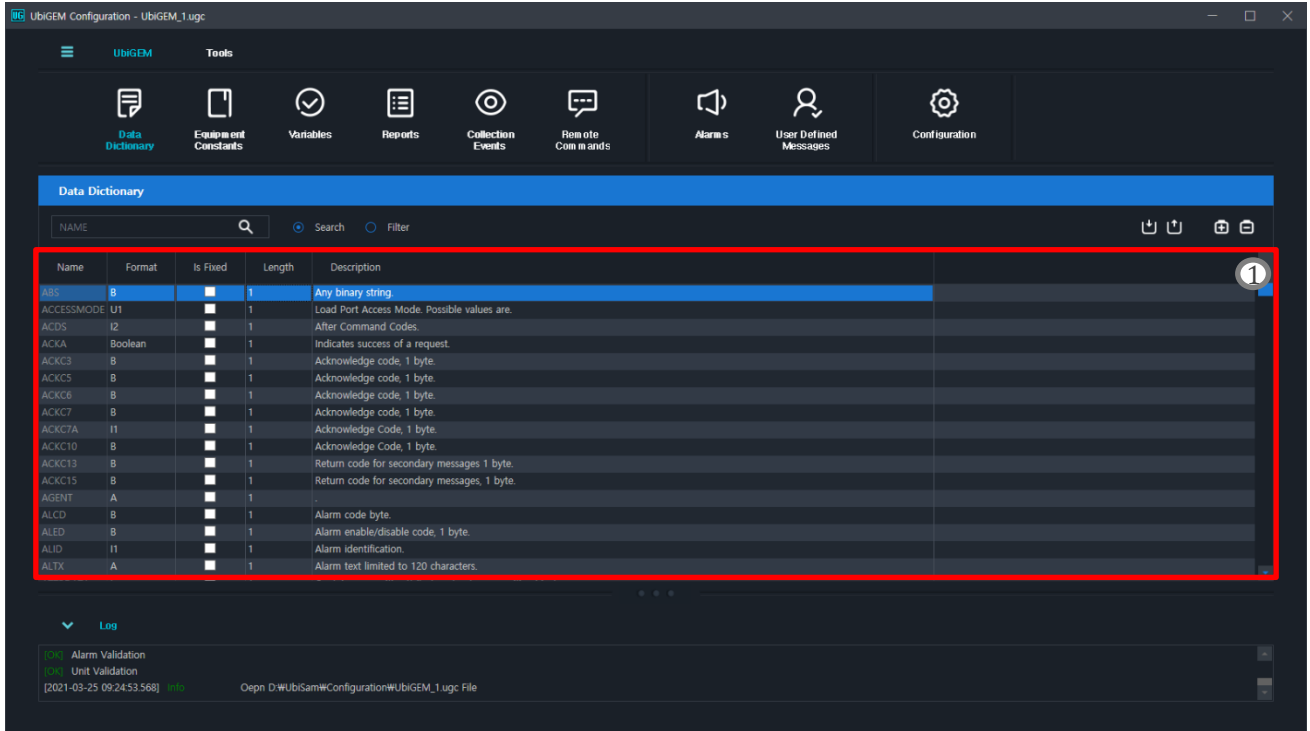
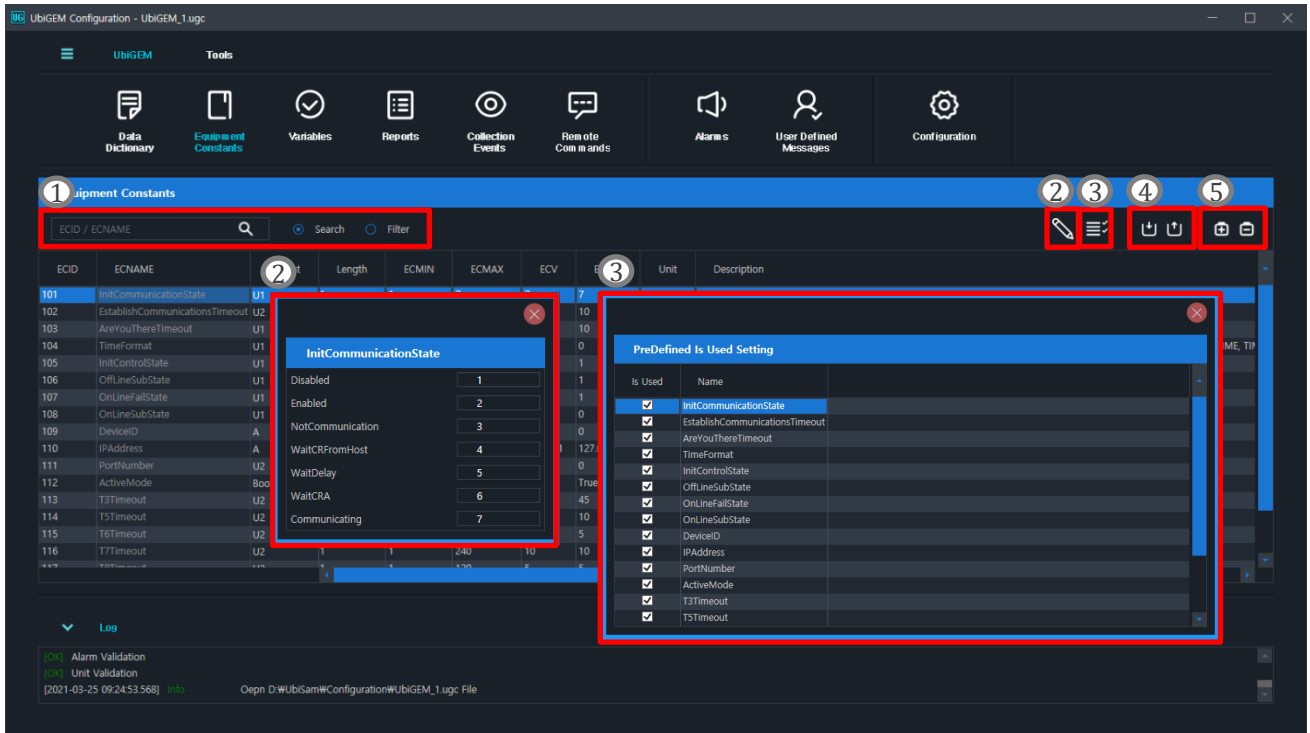
- Data dictionary detail setting screen

    1) Name : a non-duplicate data dictionary name.
    2) Format : a data type.
    3) Length : a data length.
    4) Description : the description of a data dictionary item.

    ❖ A validation error occurs when a duplicate name is provided.
    ❖ Names of predefined items can not be changed.

6. Equipment Constants
1) Search, add and delete
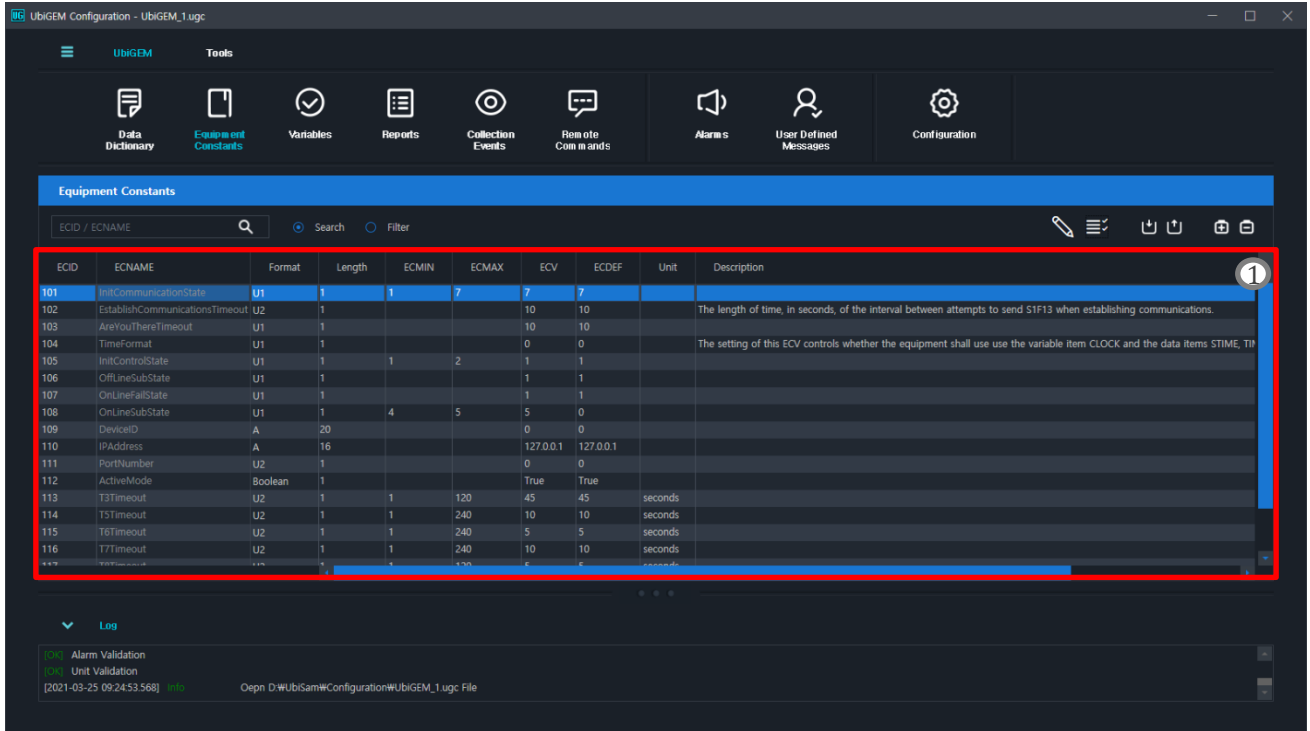

- Equipment constant list

  1) Search for items
     – Search : find items by ECID or ECNAME.
     – Filter : filter items by ECID or ECNAME.
     – The filter function is initialized when searching without data in the search window.

  2) EC Value Mapping button
     – The meaning of the EC value defined in the driver is defined as the user's value.

  3) PreDefined Is Used Setting button
     – This is a button to set whether to use the PreDefined item

  4) .cvs import / export buttons
     – When exporting, check if all predefined data items exist.
     – When exporting, you can choose to delete all existing items, insert the exported data, retain the existing data and update with the exported data.

  3) Add / delete buttons
     – A predefined item can not be deleted.

6. Equipment Constants
2) Detail settings

- Equipment constant detail setting screen

  1) ECID : the ID of a non-duplicate EC.
  2) ECNAME : a non-duplicate EC name.
  3) Use : set whether or not to use.
  4) Format : a data type.
  5) Length : a data length.
  6) ECMIN : a minimum data value.
  7) ECMAX : a maximum data value.
  8) Value : the value of an EC.
  9) ECDEF : the default value of an EC.
  10) Description : the description of an EC.

  ❖ A validation error occurs when a duplicate ECID is provided.
  ❖ A validation error occurs when a duplicate ECNAME is provided.
  ❖ ECNAMEs of predefined items can not be changed.

7. Variables
1) Search, add and delete
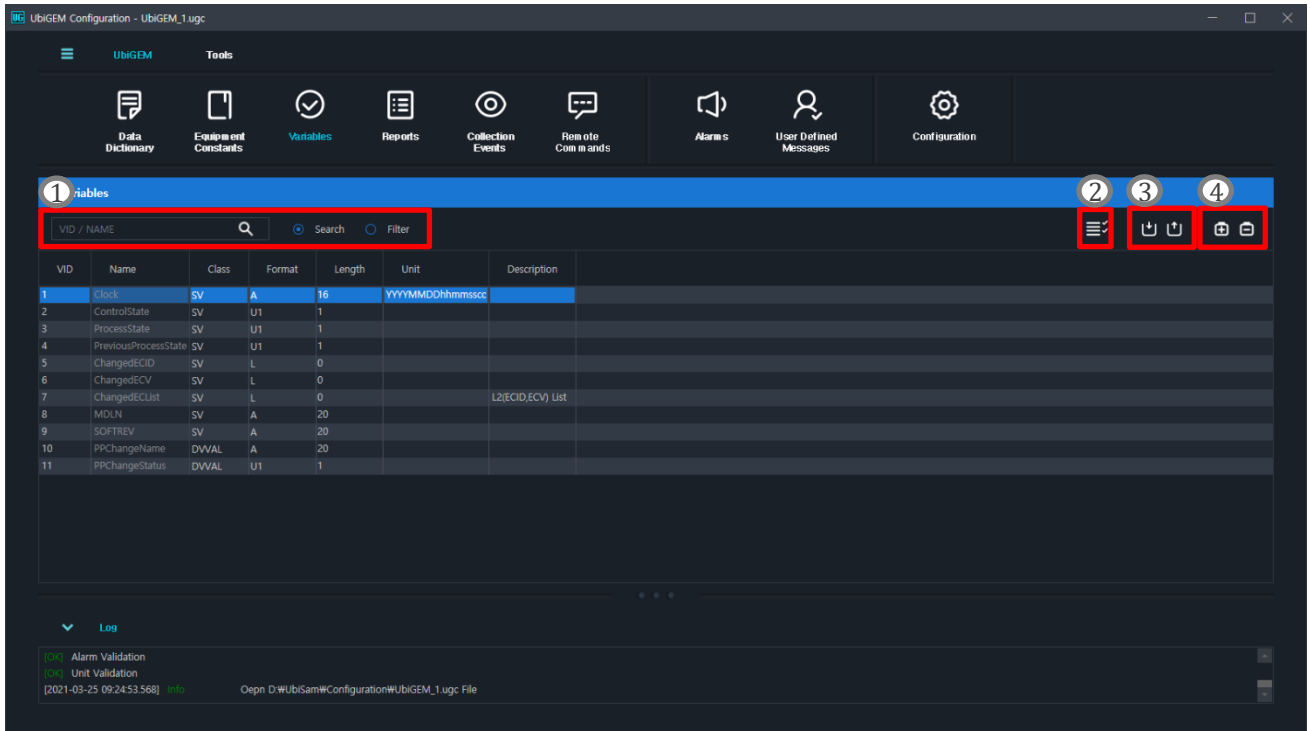
• Variable list

1) Search for items
– Search : find items by name or VID.
– Filter : filter items by name or VID.
– The filter function is initialized when searching without data in the search window.

### 2) .cvs import / export buttons
– When exporting, check if all predefined data items exist.
– When exporting, you can choose to delete all existing items, insert the exported data, retain the existing data and update with the exported data.

3) Add / delete buttons
– A predefined item can not be deleted.
– If the item to be deleted is linked to reports, it can be deleted after unlinking with the reports.

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7. Variables
2) Detail settings
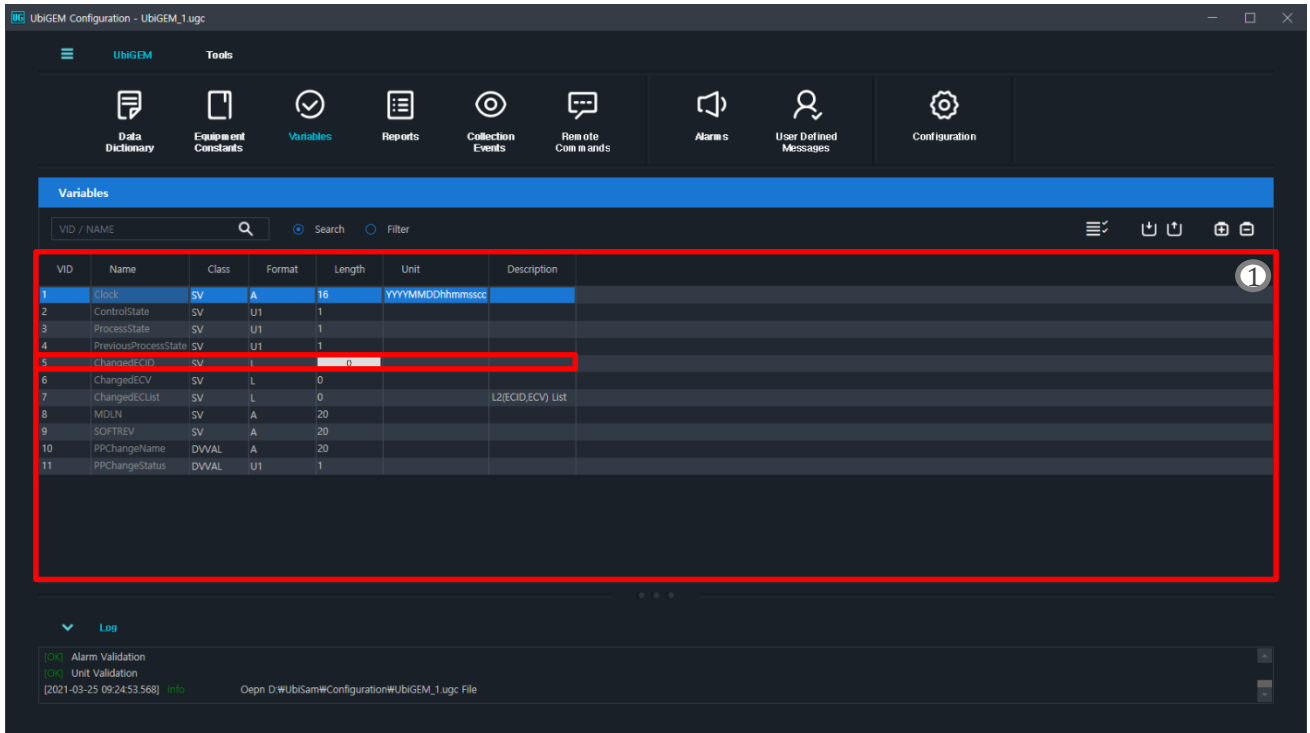
- ## Variable detail setting screen

   Status Variable (SV), Data Variable (DVVAL) are settable.

    1) VID Type : a variable type .
    2) VID : a non-duplicate Variable ID.
    3) DVNAME : a non-duplicate Variable name.
    4) Use : set whether or not to use.
    5) Format : a data type.
    6) Length : set to child variable count if data length and format are of L type.
    7) Unit : a variable unit.
    8) Description : the description of a variable.
    9) Child Variables : the child variable list of variables having the 'L' VID type.

    ❖ A validation error occurs when a duplicate VID is provided.
    ❖ A validation error occurs when a duplicate DVNAME is provided.
    ❖ DVNAMEs of predefined items can not be changed.

7. Variables
3) Child Variable
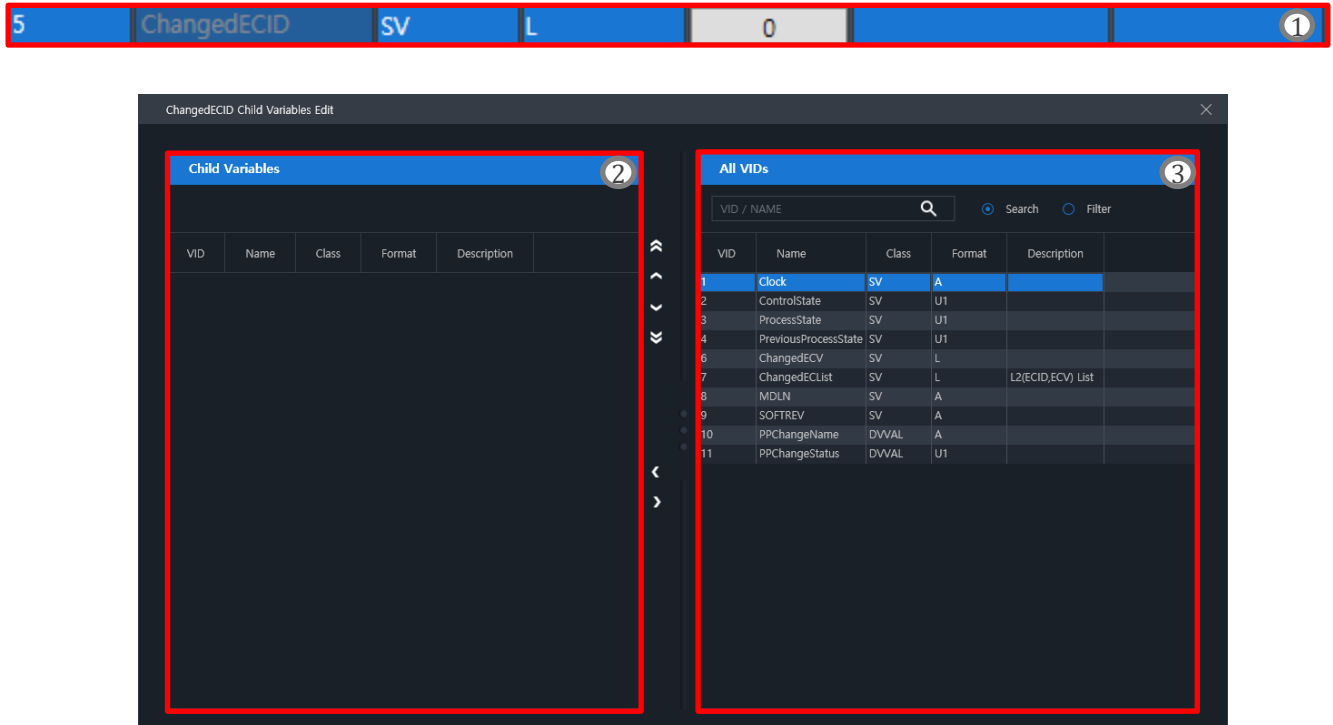
- Child variable setting screen

  1) The child variable setting button of variables with VID type 'L'.
     - Can not set the variable if its VID type is not 'L'.

  2) This is a child variable list.
     - Adding / deleting items can be done by the right / left buttons.
     - Item position adjustment can be done by the up and down buttons.
     - Items that have already been added or items referenced as child variables can not be added.

  3) This is a list of all registered variables.
     - Search : find items by VID or name.
     - Filter : filter items by VID or name.
     - The filter function is initialized when searching without data in the search window.

  4) Variable settings are applied when clicking the close button.

8. Reports
1) Add and delete
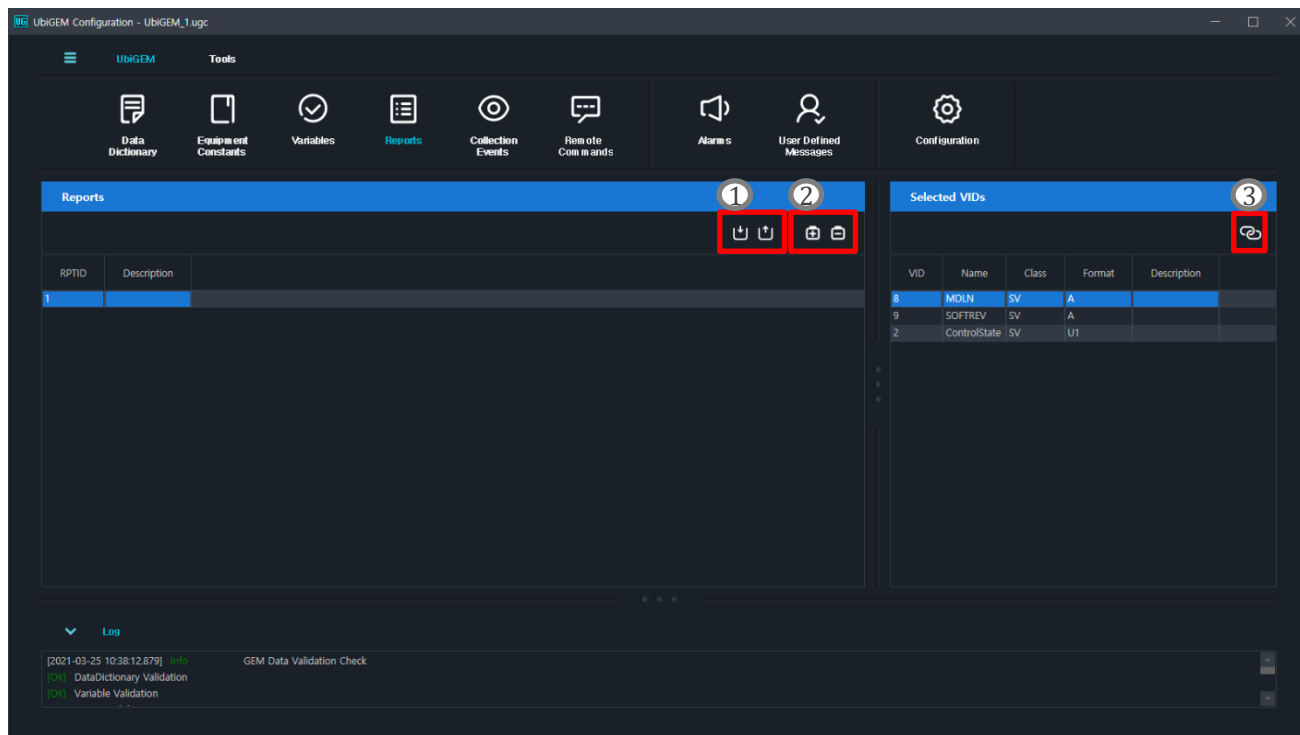
- Report list

    1) cvs import / export buttons.
        - When exporting, check if all predefined data items exist.
        - When exporting, you can choose to delete all existing items, insert the exported data, retain the existing data and update with the exported data.
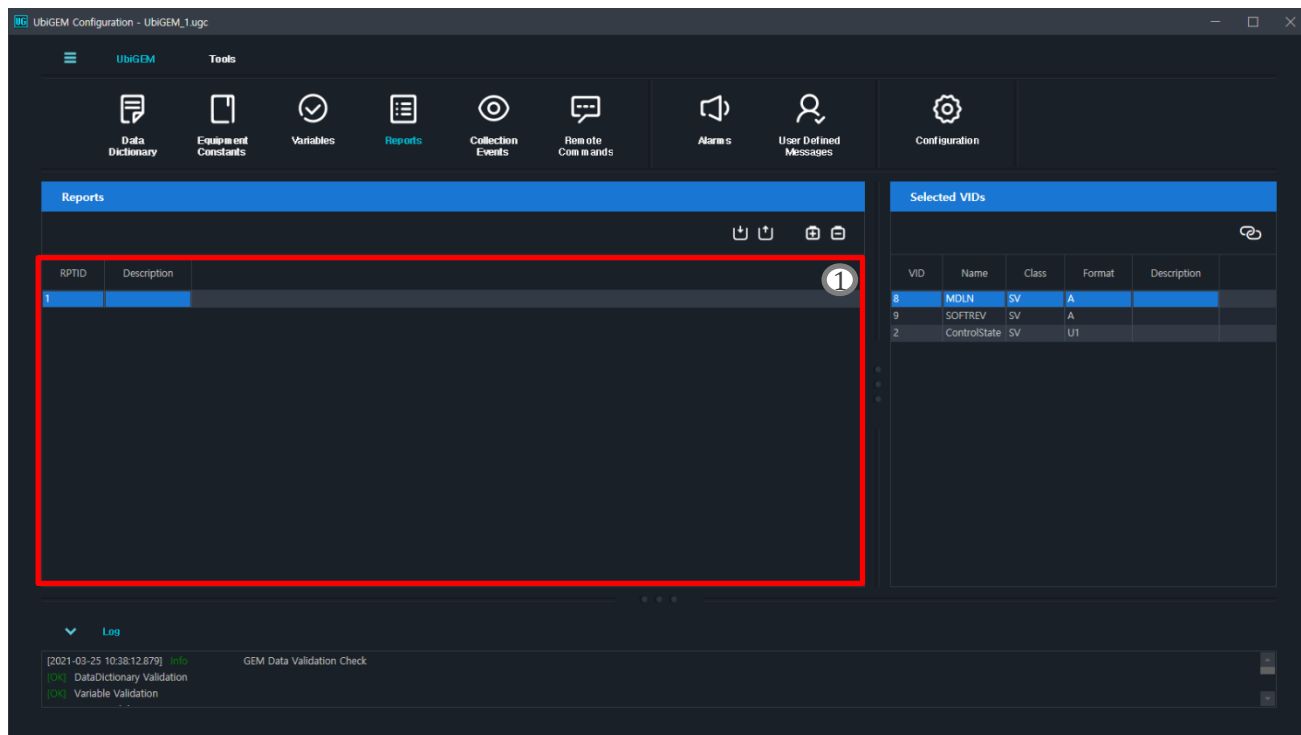
    2) Add / delete buttons.
        - If the RPTID of a new item is empty, the next item can not be added.

    3) Variable Link button
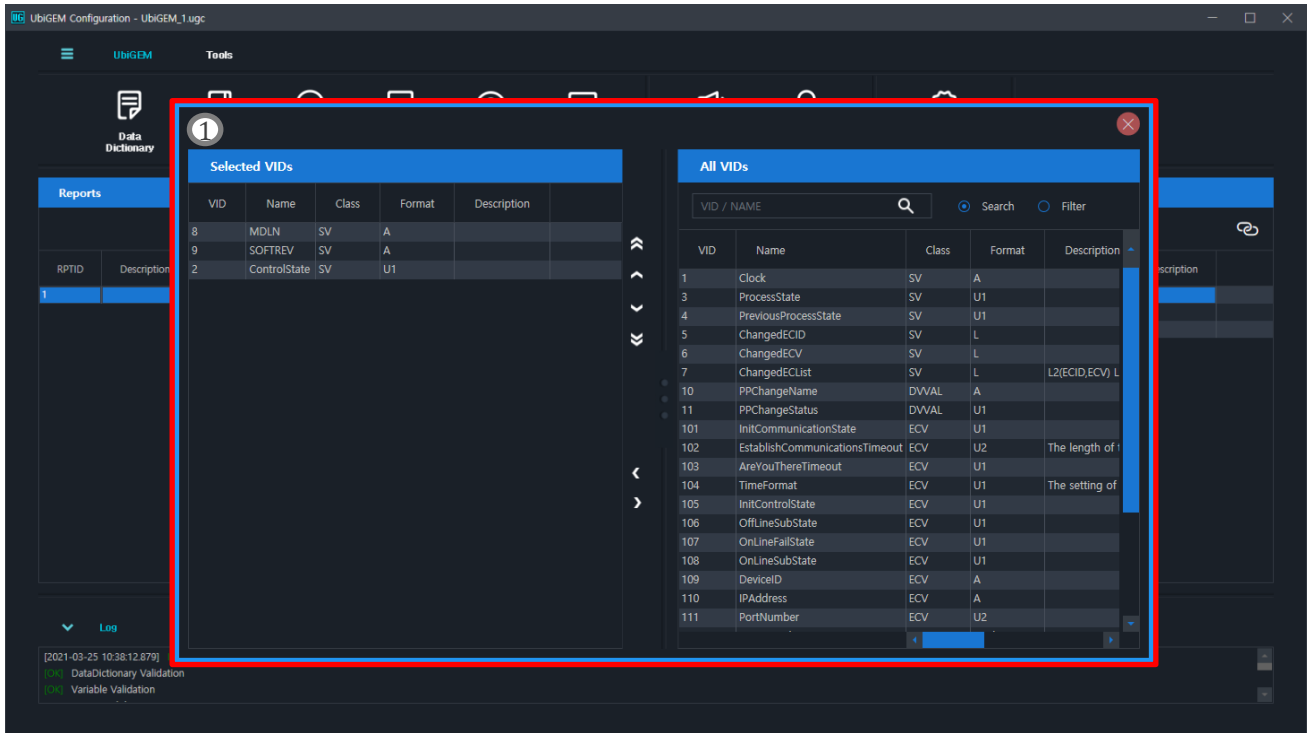
8. Reports
1) Detail settings

- Report detail setting screen

    1) RPTID : a non-duplicate report ID.
    2) Description : the description of a report.

    ❖ A validation error occurs when a duplicate RPTID value is provided.

8. Reports
2) Select Variable

- A setting screen for EC, SV, DVVAL that will be sent when submitting a report.

  1) Selected VIDs.
     - Adding / deleting items can be done by the right / left buttons.
     - Item position adjustment can be done by the up and down buttons.
     - Items that have already been added can not be added again.

  2) All VIDs.
     - Search : find items by VID or name.
     - Filter : filter items by VID or name.
     - The filter function is initialized when searching without data in the search window.

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9. Collection Events
1) Search, add and delete
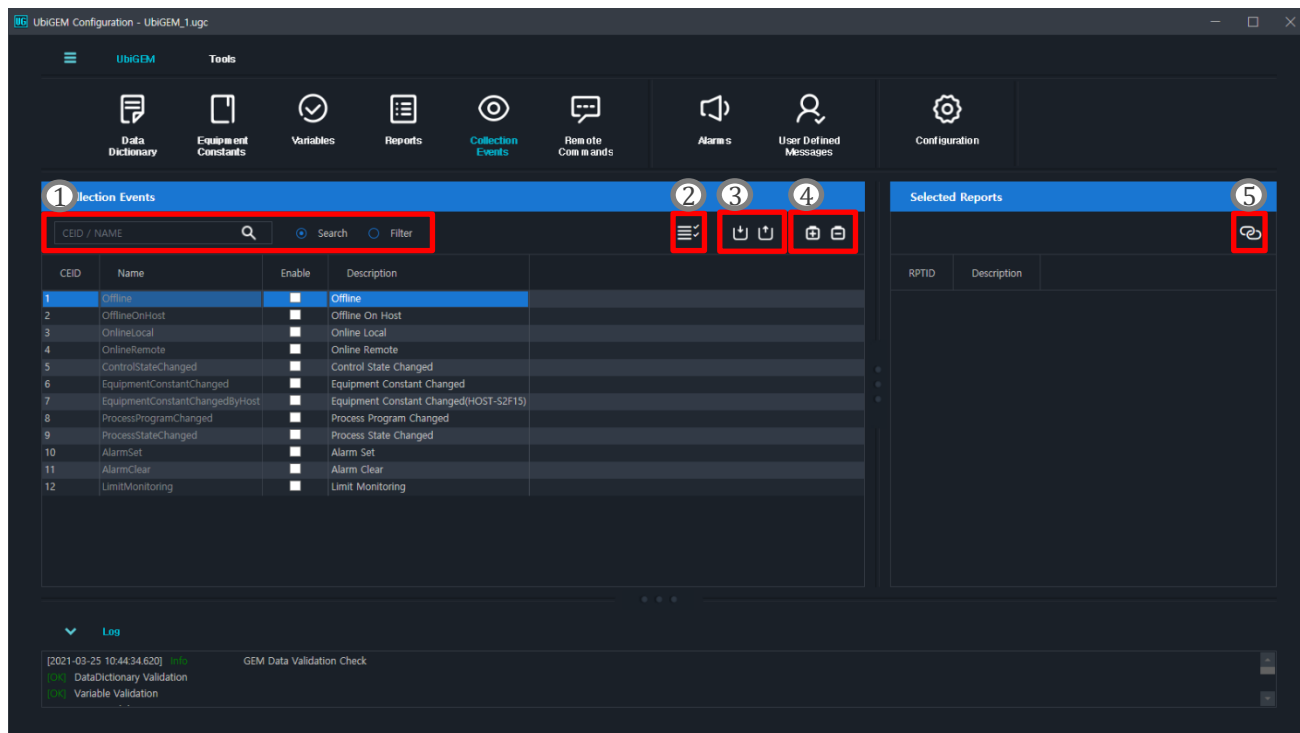
- Collection event list

  1) Search for items.
     – Search : find items by VID or name.
     – Filter : filter items by VID or name.
     – The filter function is initialized when searching without data in the search window.

  2) PreDefined Is Used Setting button
     – This is a button to set whether to use the PreDefined Item.

  3) .cvs import / export buttons.
     – When exporting, check if all predefined data items exist.
     – When exporting, you can choose to delete all existing items, insert the exported data, retain the existing data and update with the exported data.
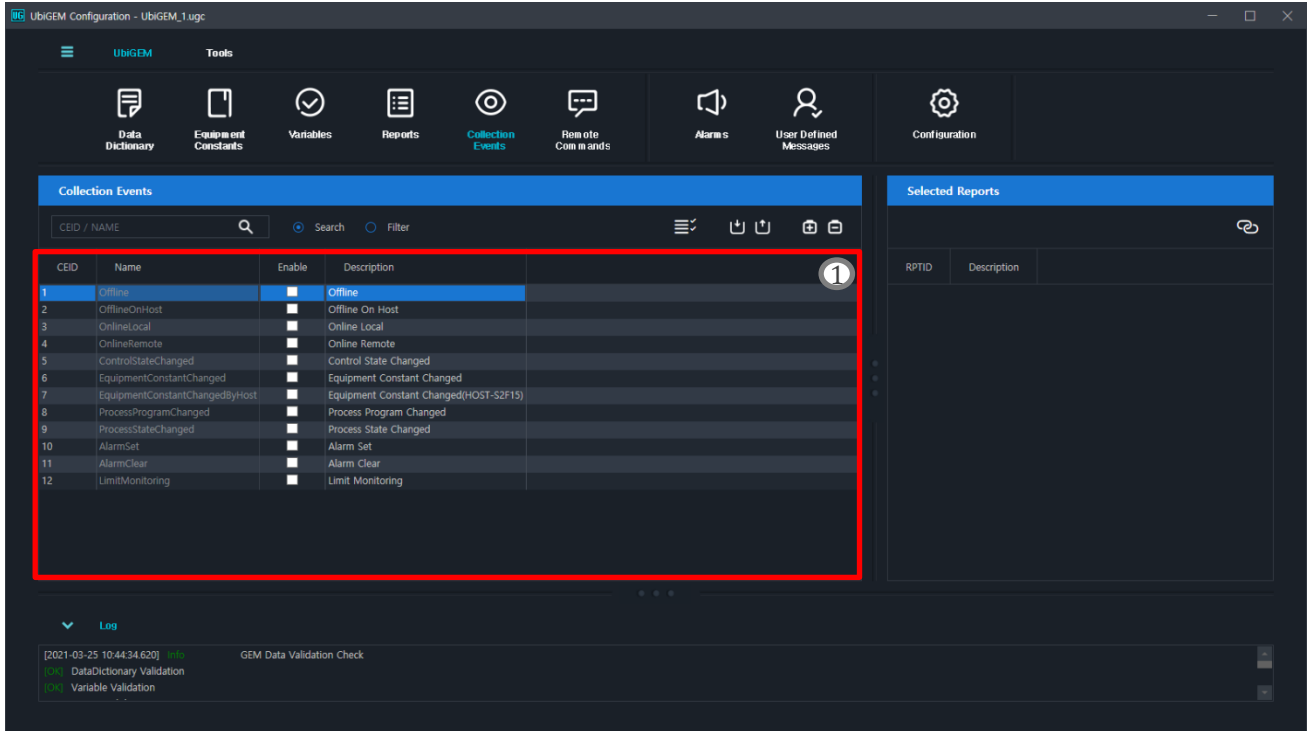
  4) Add / delete buttons.
     – If the VID or name of a new item is empty, the next item can not be added.
     – A predefined item can not be deleted.
     – If the item to be deleted is linked to reports, it can be deleted after unlinking with the reports.

  5) Report Link button

9. Collection Events
2) Detail settings

- ## Event detail setting screen

  1) CEID : a non-duplicate collection event ID.
  2) Name : a non-duplicate collection event name.
  3) Use : whether or not to use.
  4) Enable : whether it is active or not.
  5) Description : the description of a collection event.

  ❖ A validation error occurs when a duplicate CEID is provided.
  ❖ A validation error occurs when a duplicate name is provided.
  ❖ Names of predefined items can not be changed.

## 9. Collection Events
3) Select Report
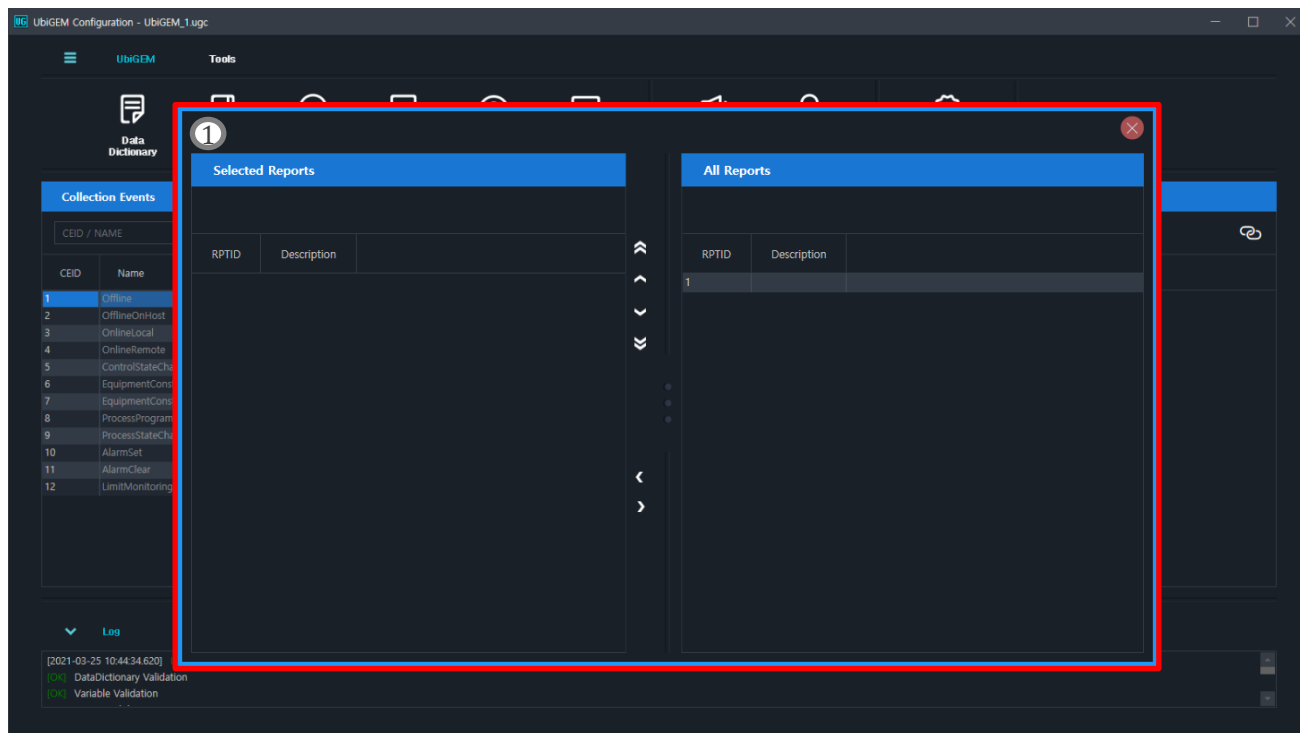
- The report setting screen of reports that will be sent when the selected event occurs.

    1) Select reports.
        - Adding / deleting items can be done by the right / left buttons.
        - Item position adjustment can be done by the up and down buttons.
        - Items that have already been added can not be added again.

    2) All reports
        - The list of registered reports..

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10. Remote Commands
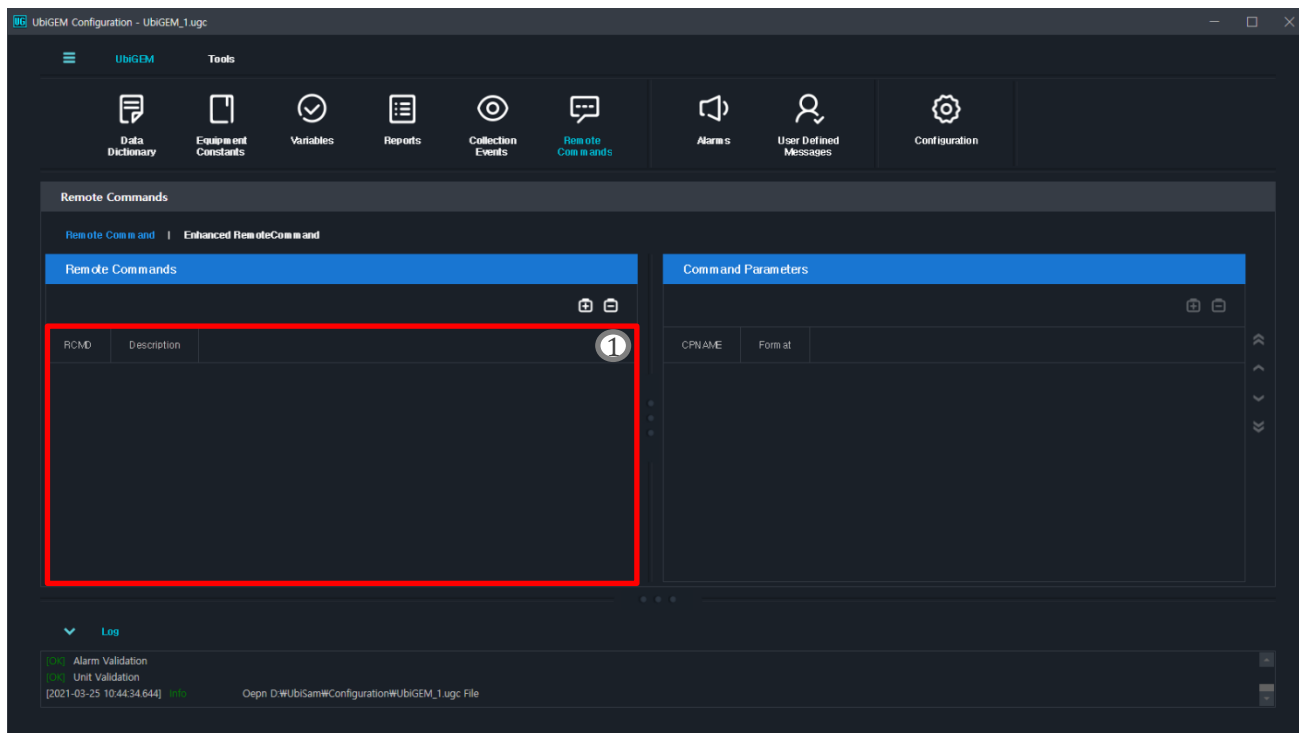### 10.1 Remote Command
1) Remote Command add and delete
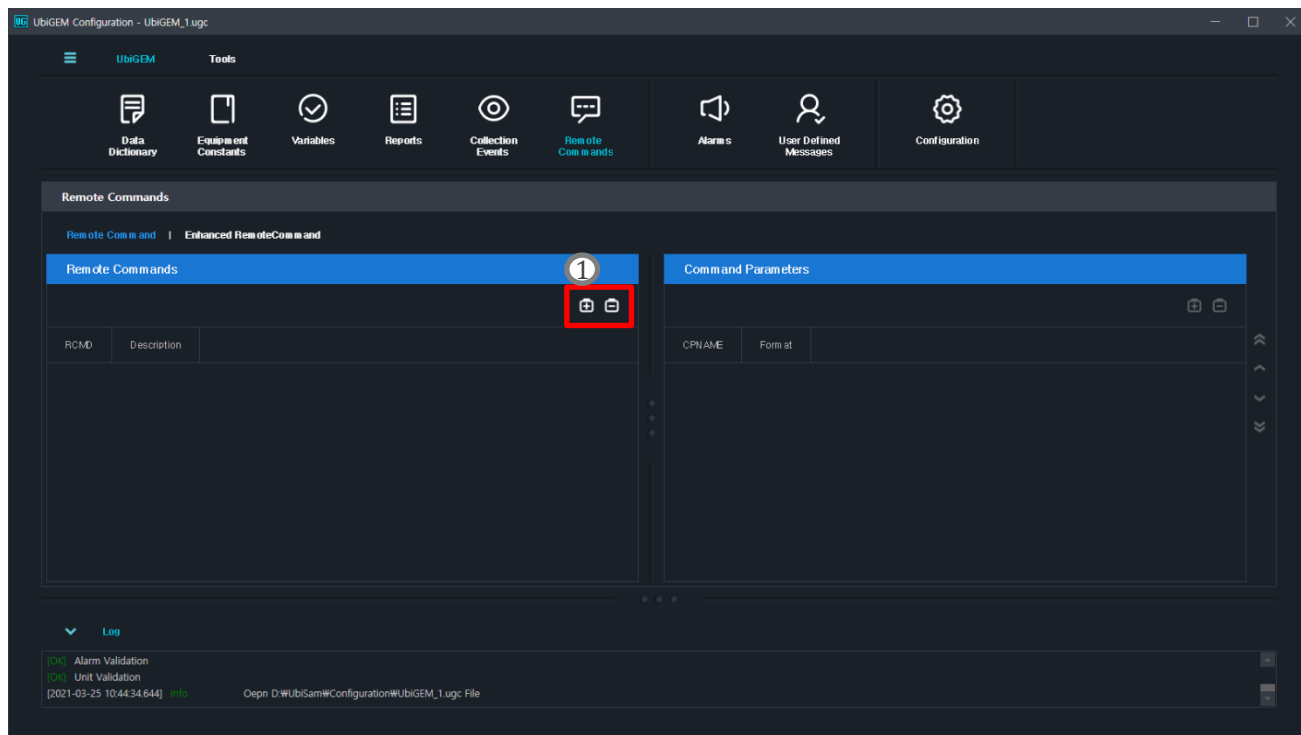
- Remote Command list

    1) Add / delete item buttons

10. Remote Commands
10.1 Remote Command
2) Remote Command detail settings

- Remote Command detail setting screen

  1) RCMD : a non-duplicate remote command name.
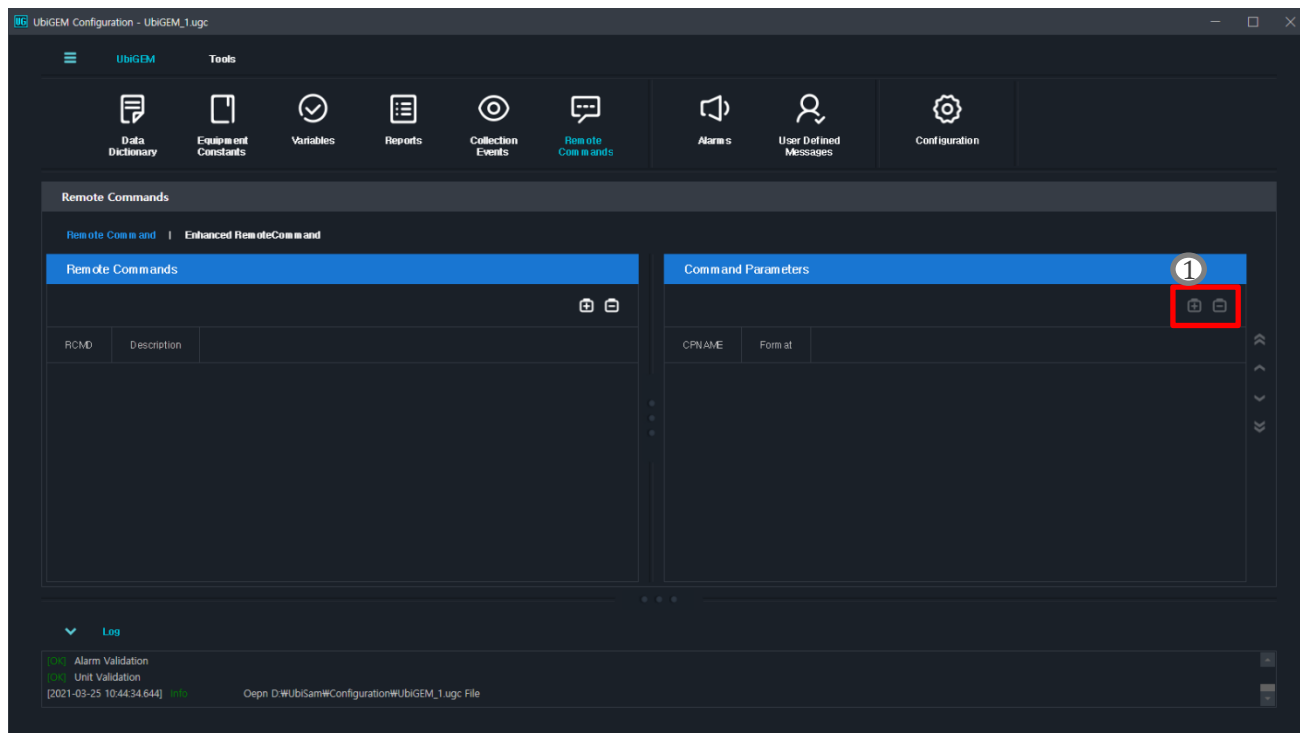 2) Description : the description of a remote command.

  ❖ A validation error occurs when a duplicate RCMD is provided.

10. Remote Commands
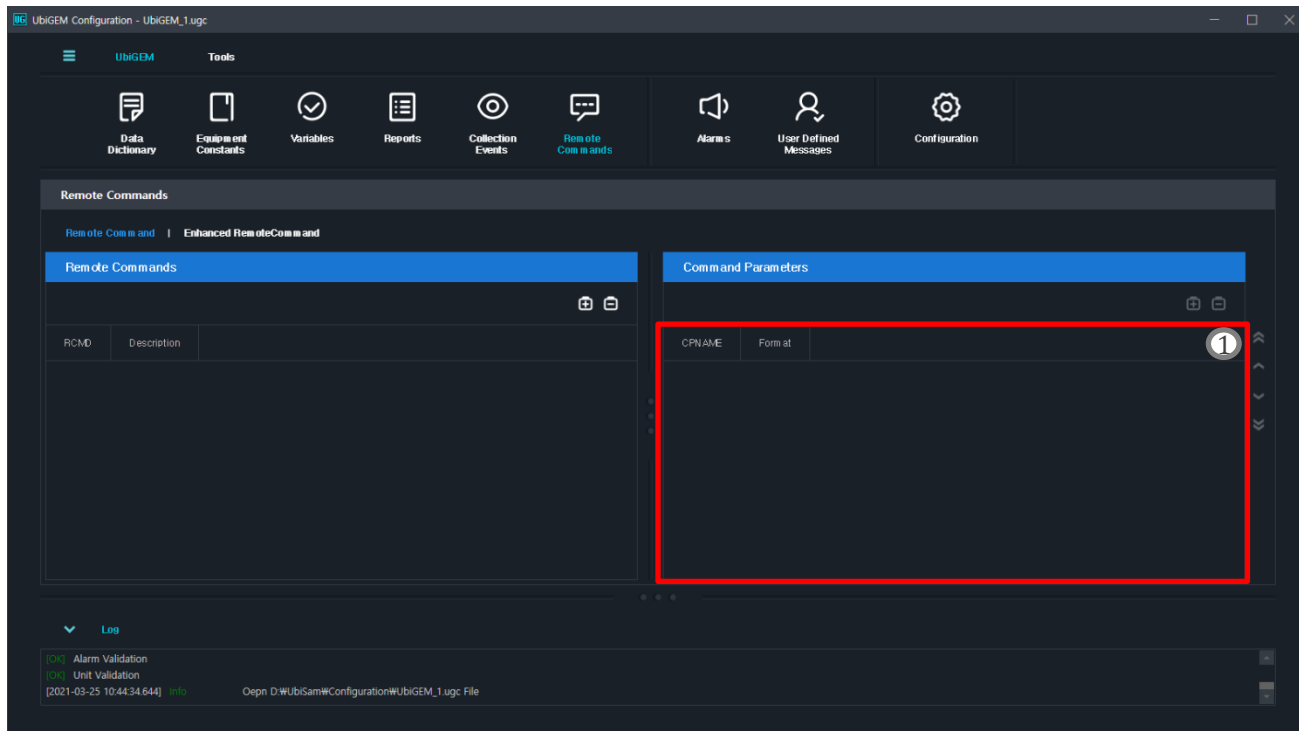### 10.1 Remote Command
3) Parameter add and delete

- A parameter list sent when transmitting a remote command.

1) Add / delete item buttons.

10. Remote Commands
10.1 Remote Command
4) Parameter detail settings
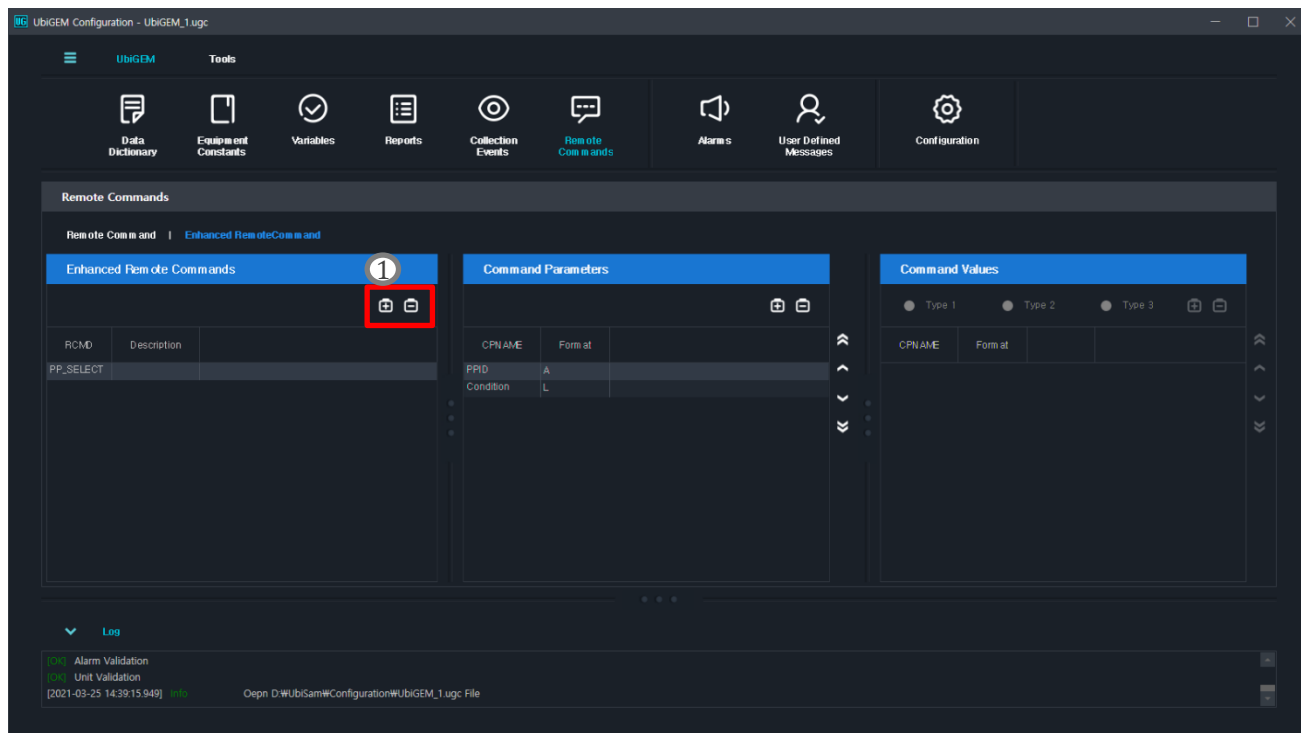

- Parameter detail setting screen

    1) CPNAME : a non-duplicate parameter name.
    2) Format : a data type.

    ❖ A validation error occurs when a duplicate CPNAME is provided.

10. Remote Commands
10.2 Enhanced Remote Command
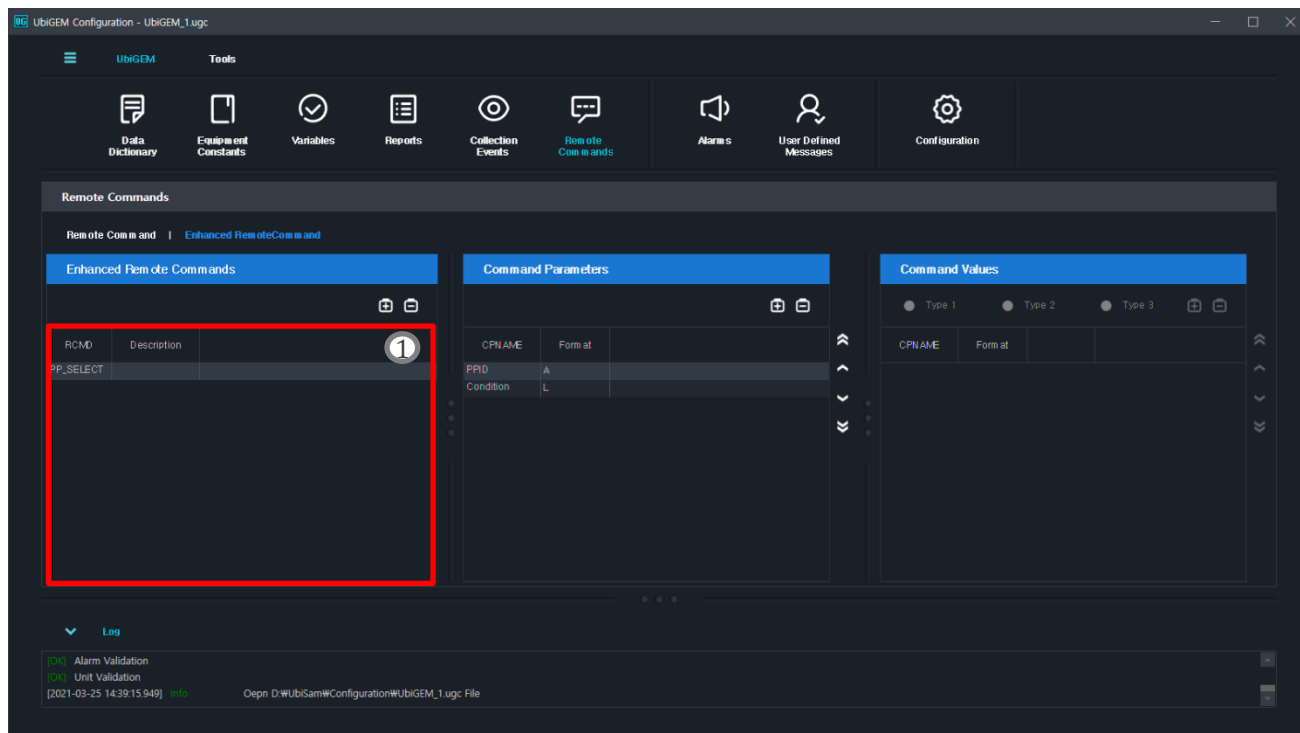#### 1) Enhanced Remote Command add and delete

- Enhanced Remote Command list

    1) Add / delete item buttons

10. Remote Commands
10.2 Enhanced Remote Command
1) Enhanced Remote Command detail settings
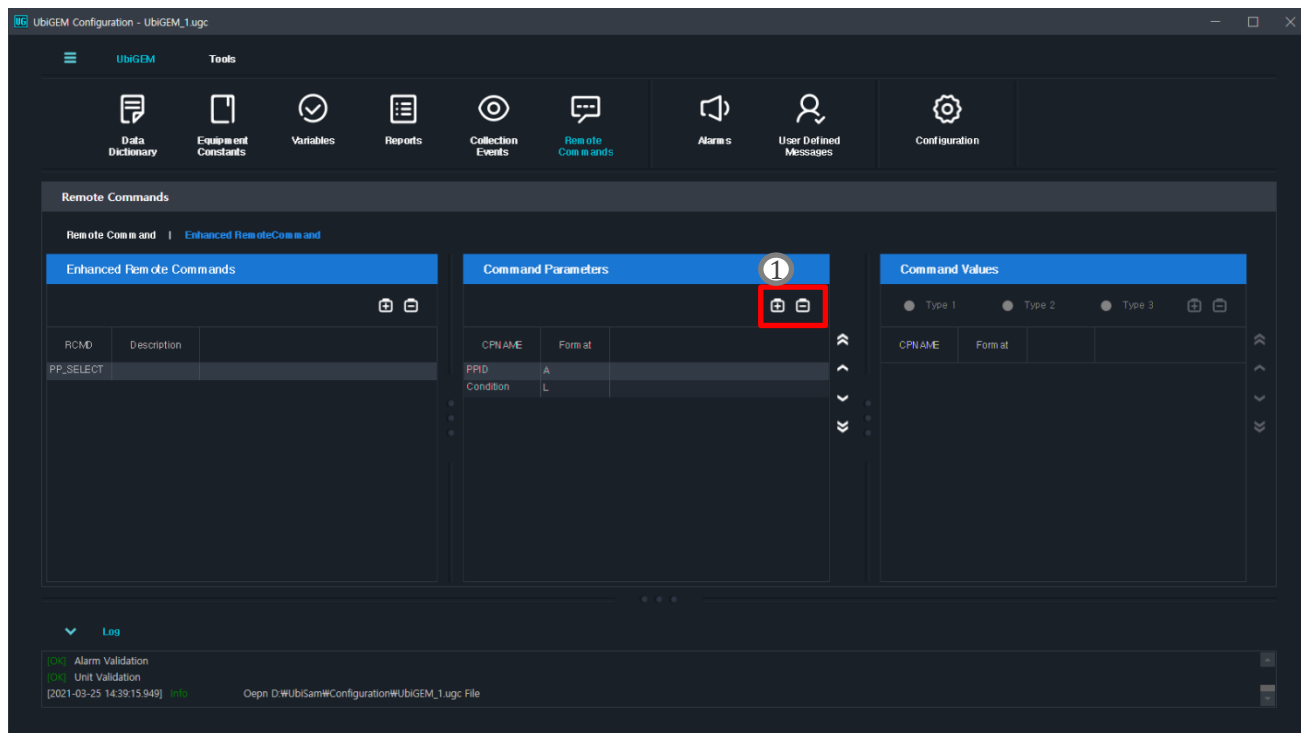

- Enhanced remote command detail setting screen

  1) RCMD : a non-duplicate Enhanced remote command name.
  2) Description : the description of an enhanced remote command.

  ❖ A validation error occurs when a duplicate RCMD is provided.

10. Remote Commands
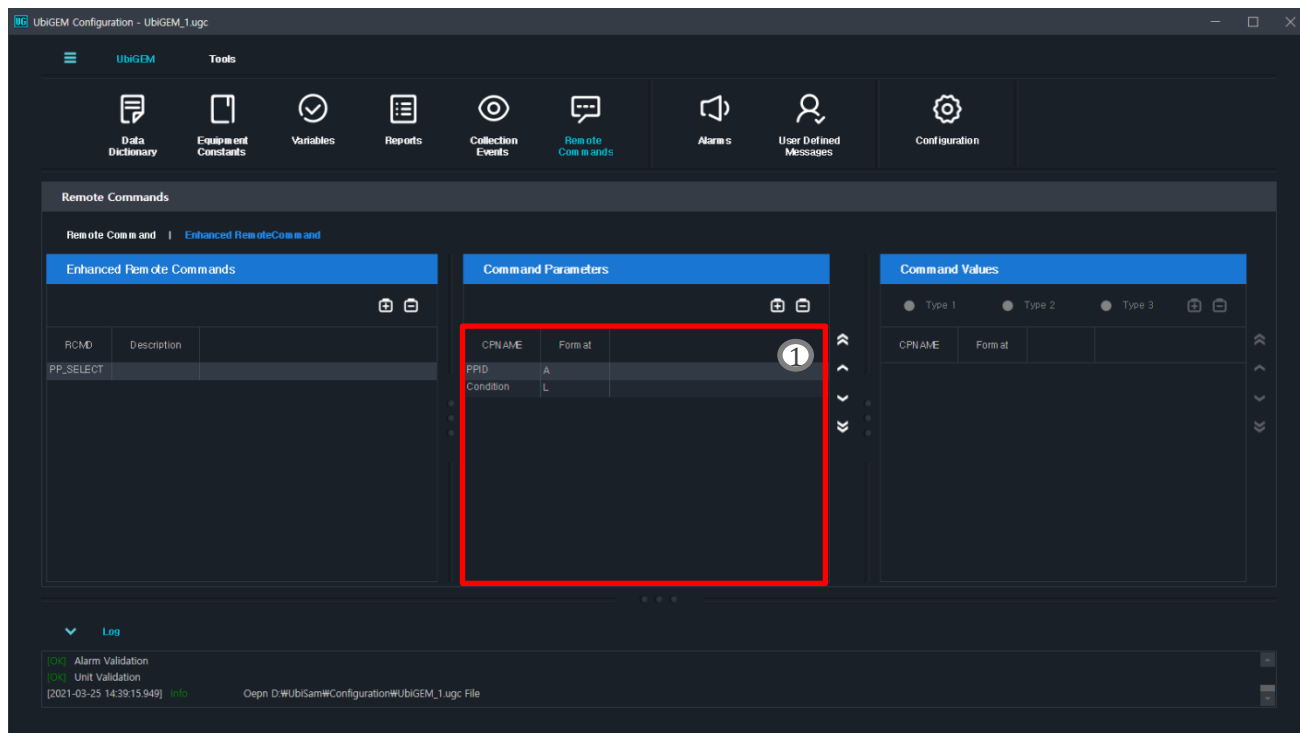### 10.2 Enhanced Remote Command
3) Parameter add and delete

- A parameter list sent when transmitting an enhanced remote command.

1) Add / Delete item buttons.

10. Remote Commands
10.2 Enhanced Remote Command
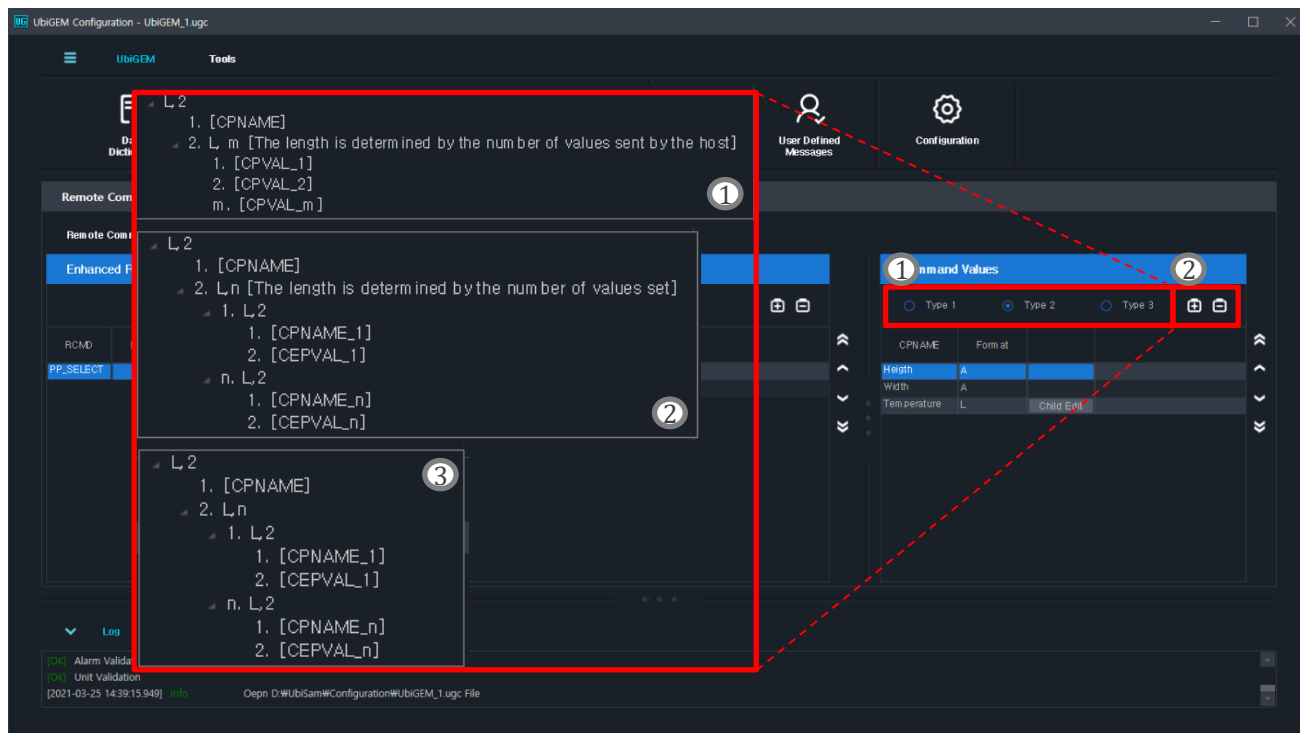### 4) Parameter detail settings

- Parameter detail setting screen

  1) CPNAME : a non-duplicate parameter name.
  2) Format : a data type.

  ❖ A validation error occurs when a duplicate CPNAME is provided.
  ❖ If the format is 'L' and a value is provided, a value delete information window will be displayed when changing to a format other than 'L'.

10. Remote Commands
10.2 Enhanced Remote Command
5) Value add and delete, Value Type

- A value list with parameter format 'L'.

1) Type
    - Type 1 : A type that can haven values of the same format
    - Type 2 : Type that can have value for each format as defined
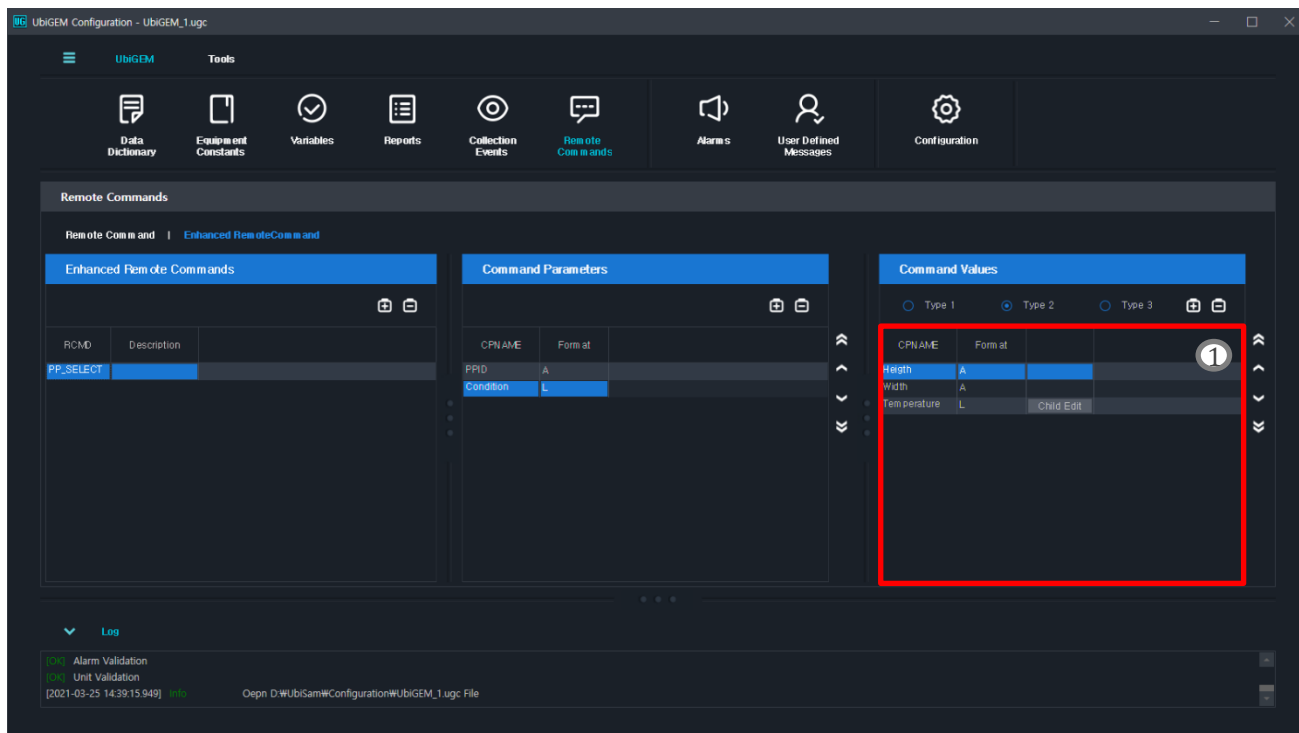   - Type 3 : Type that can have 'n' values of the same format as Name/Value pairs

2) Add / Delete item buttons.
    - A value item can not be added if the format of a parameter item is not 'L'.

10. Remote Commands
10.2 Enhanced Remote Command
6) Value detail settings

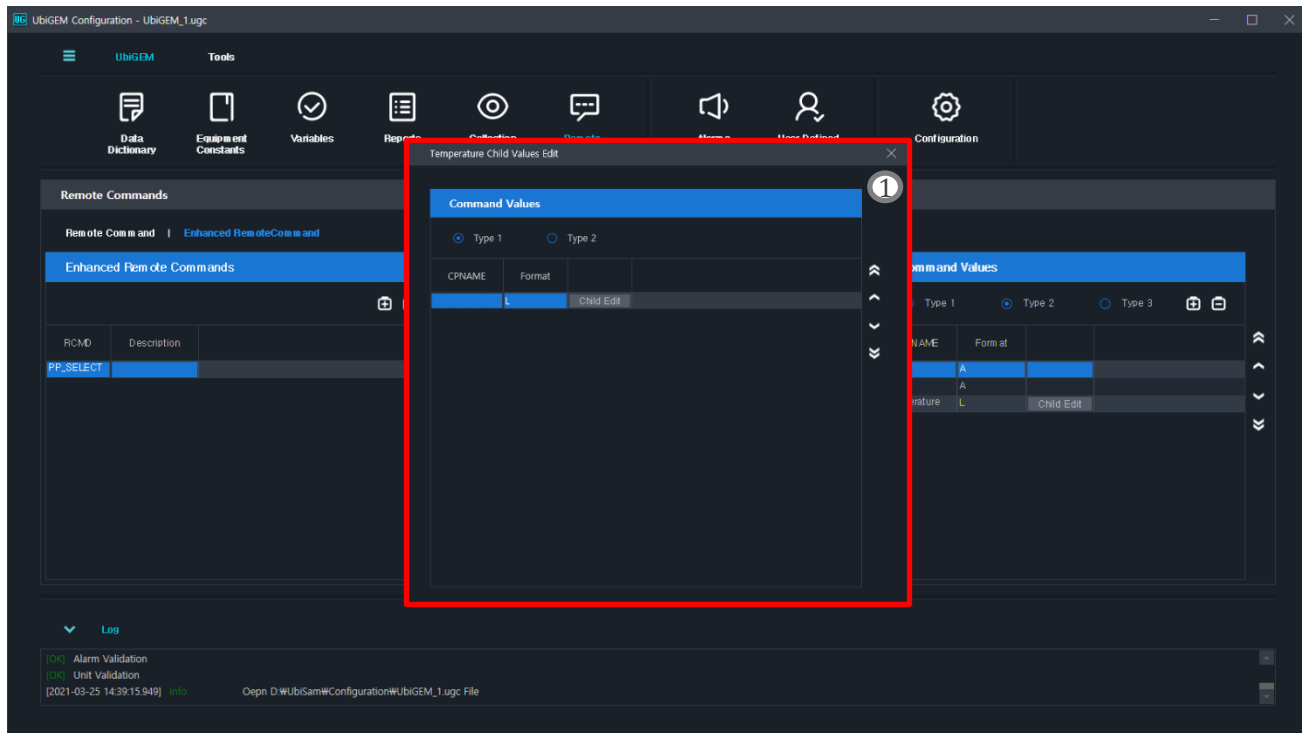- Value detail setting screen

    1) CPNAME : a non-duplicate parameter name.
    2) Format : a data type.
    3) Child Edit : Configures the child Value of Value whose Format is 'L'

    ❖ A validation error occurs when a duplicate CPNAME is provided.

10. Remote Commands
10.2 Enhanced Remote Command
6) Child Value
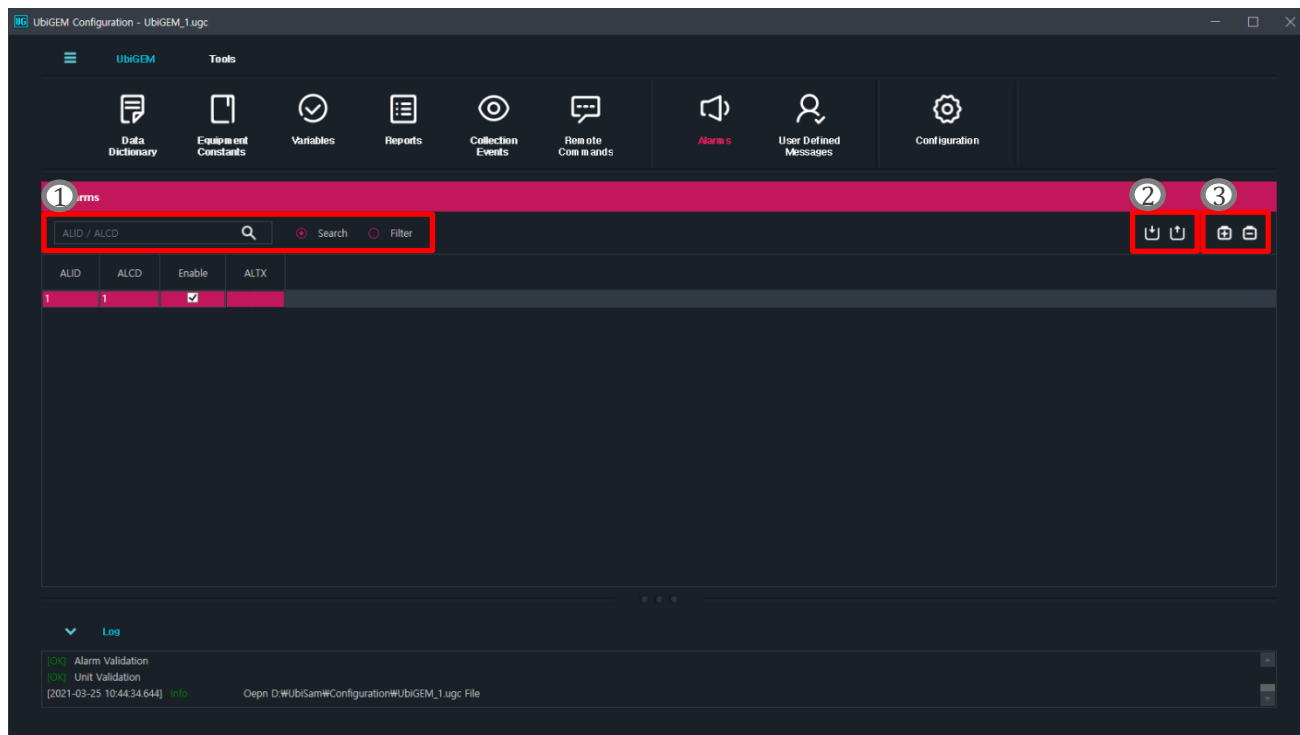

- Child Value setting screen

  1) CPNAME : a non-duplicate parameter name.
  2) Format : a data type.
  3) Child Edit : Configures the child Value of Value whose Format is 'L'

  ❖ A validation error occurs when a duplicate CPNAME is provided.

11. Alarms
1) Search, add and delete

- Alarm List

  1) Search for items.
     - Search : find items by ALID or ALCD.
     - Filter : filter by ALID or ALCD.
     - The filter function is initialized when searching without data in the
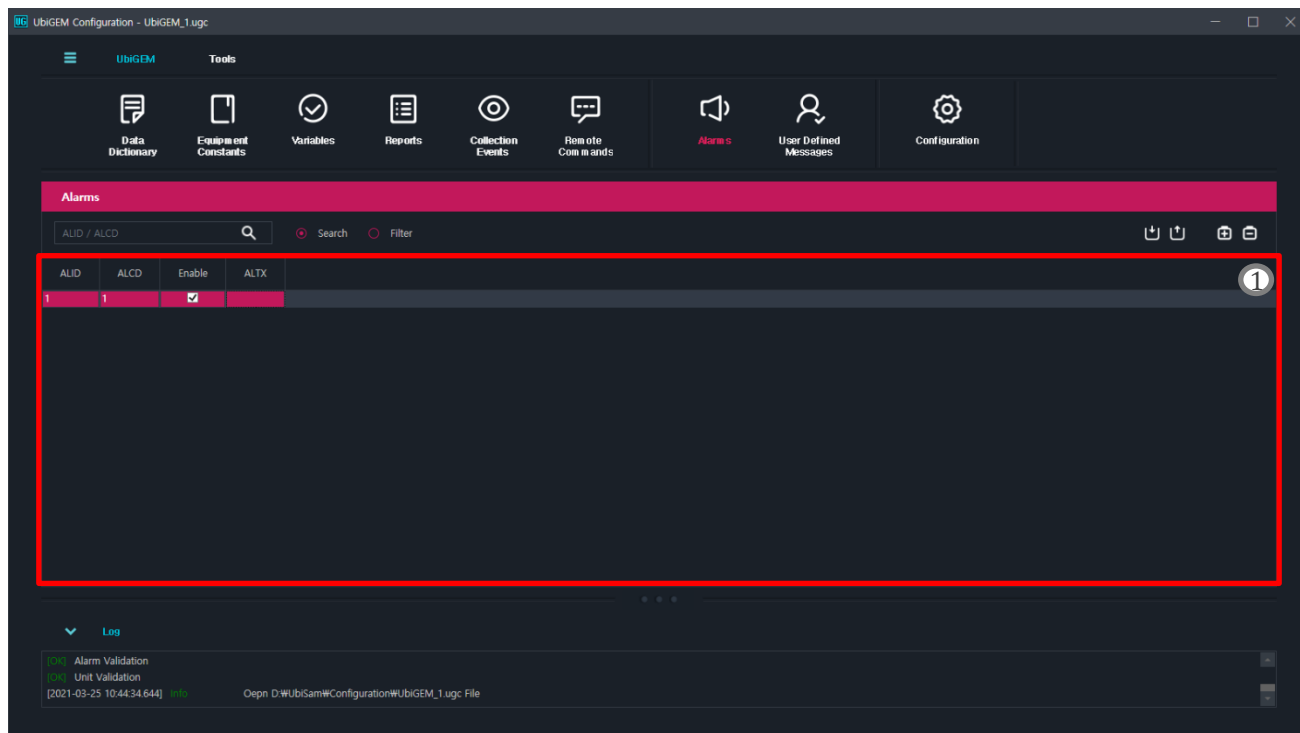   search window.

  2) .cvs import / export buttons.
     - When exporting, check if all predefined data items exist.
     - When exporting, you can choose to delete all existing items, insert
       the exported data, retain the existing data and update with the
       exported data.

  3) Add / delete item buttons.

11. Alarms
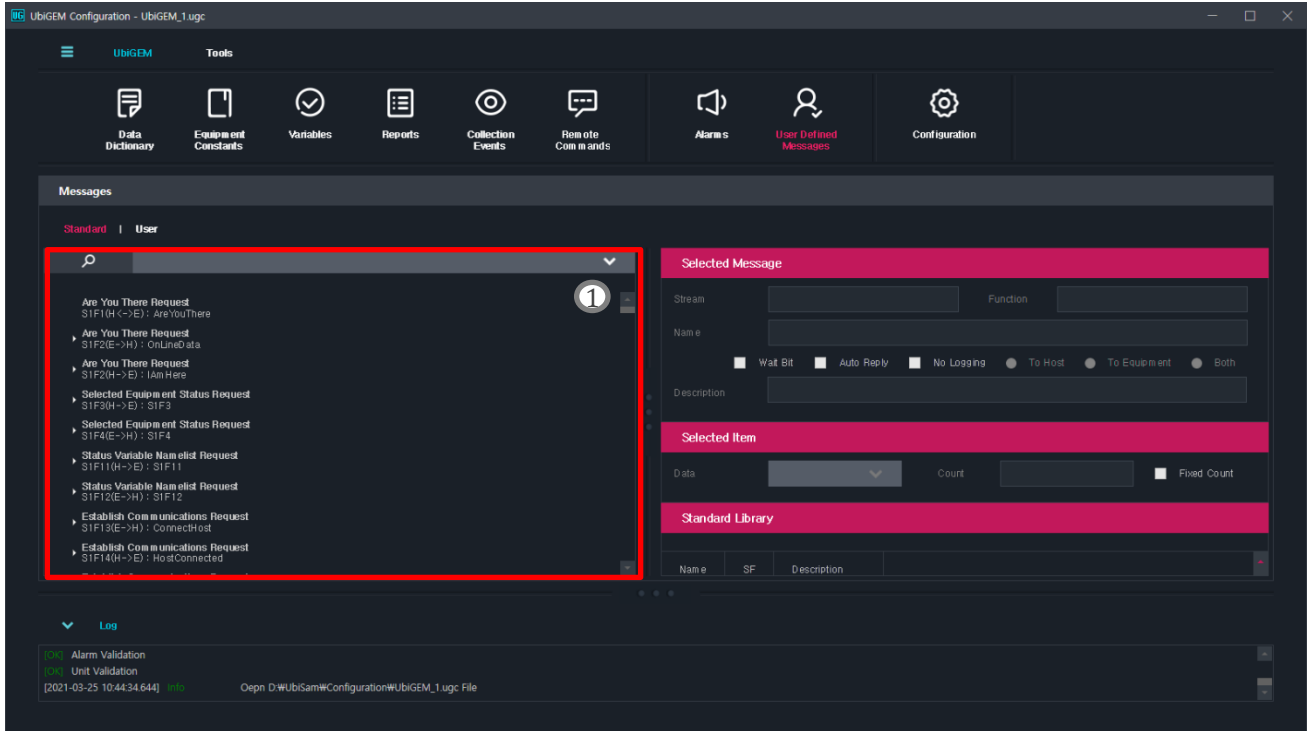### 2) Detail settings

- Alarm detail setting screen

  1) ALID : a non-duplicate alarm ID.
  2) ALCD : a non-duplicate alarm code.
  3) Enable : whether or not to use the alarm.
  4) ALTX : an alarm content.

  ❖ A validation error occurs when a duplicate ALID is provided.
  ❖ A validation error occurs when a duplicate ALCD is provided.

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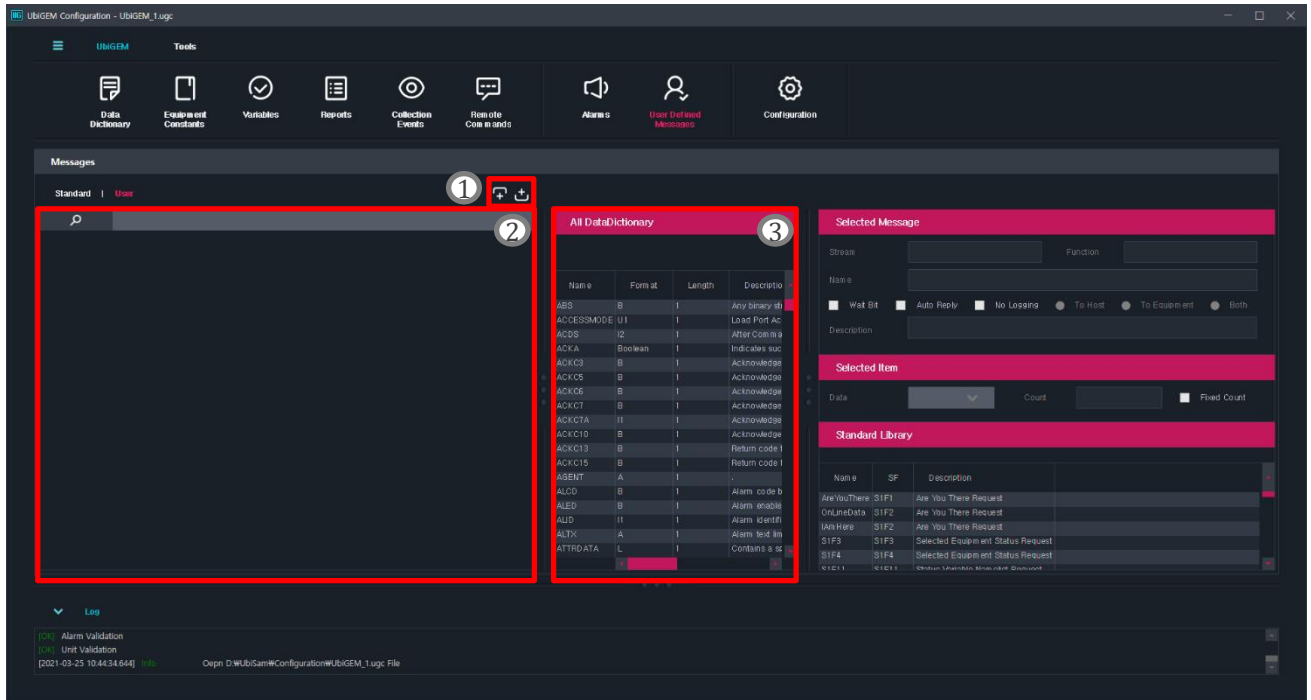## 12. User Defined Messages
1) Standard

- Standard message list

    1) The selected message can be found in the standard message list.

    ❖ Standard messages can not be modified.

12. User Defined Messages
2) User

- **User message list**

  1) Add a message and its items by dragging.

     – ⊡ : Add a message.

     – ⊡ : Add an Item.
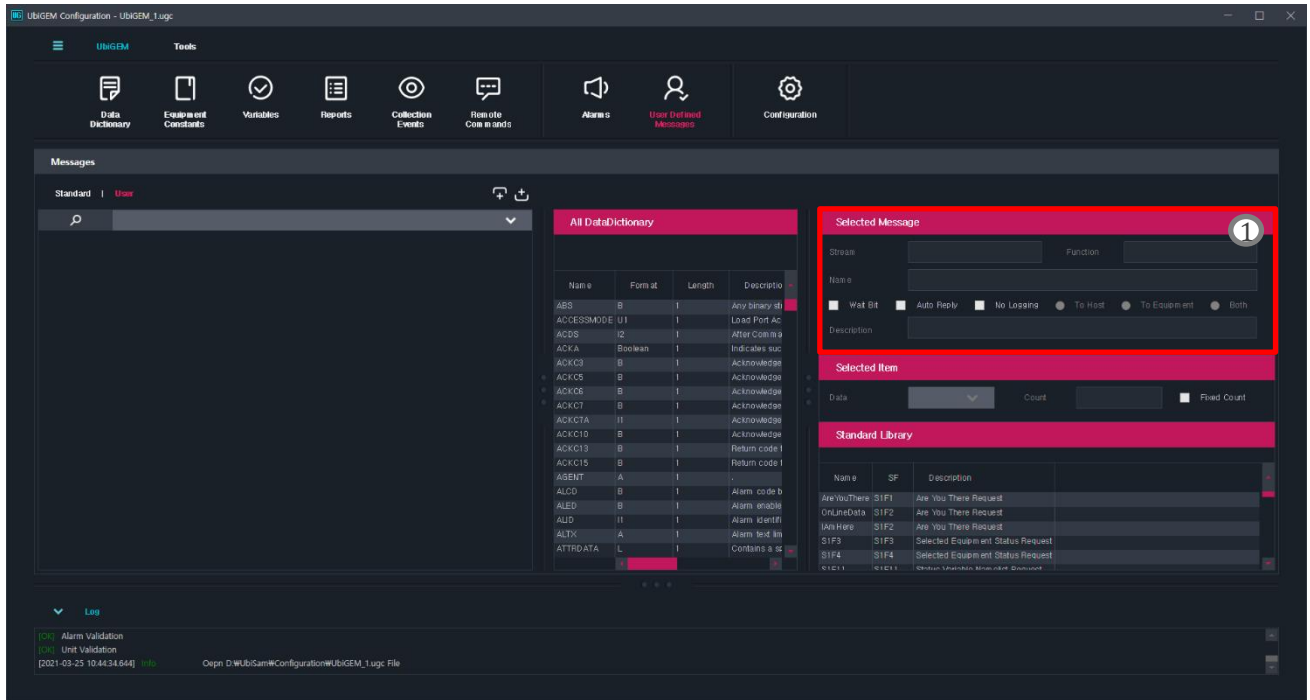
     ❖ A message is added if you drag it to the empty space below the search box.

     ❖ An Item is added if you drag it to a Message or an item of type 'L'.

  2) To delete, use the delete key.

  3) Add data registered in DataDictionary by dragging and dropping Message item.

12. User Defined Messages
3) Message detail settings

1) Stream : a non-duplicate stream number.
2) Function : a non-duplicate function number.
3) Name : a non-duplicate message name.
4) Wait Bit : expecting a reply.
5) Auto Reply : an autoresponder   .
6) No Logging :
7) To Host : messages sent from the equipment.
8) To Equipment : messages sent from the host.
9) Both : messages sent in both directions.
10) Description : the description of a message.

12. User Defined Messages
4) Item detail settings
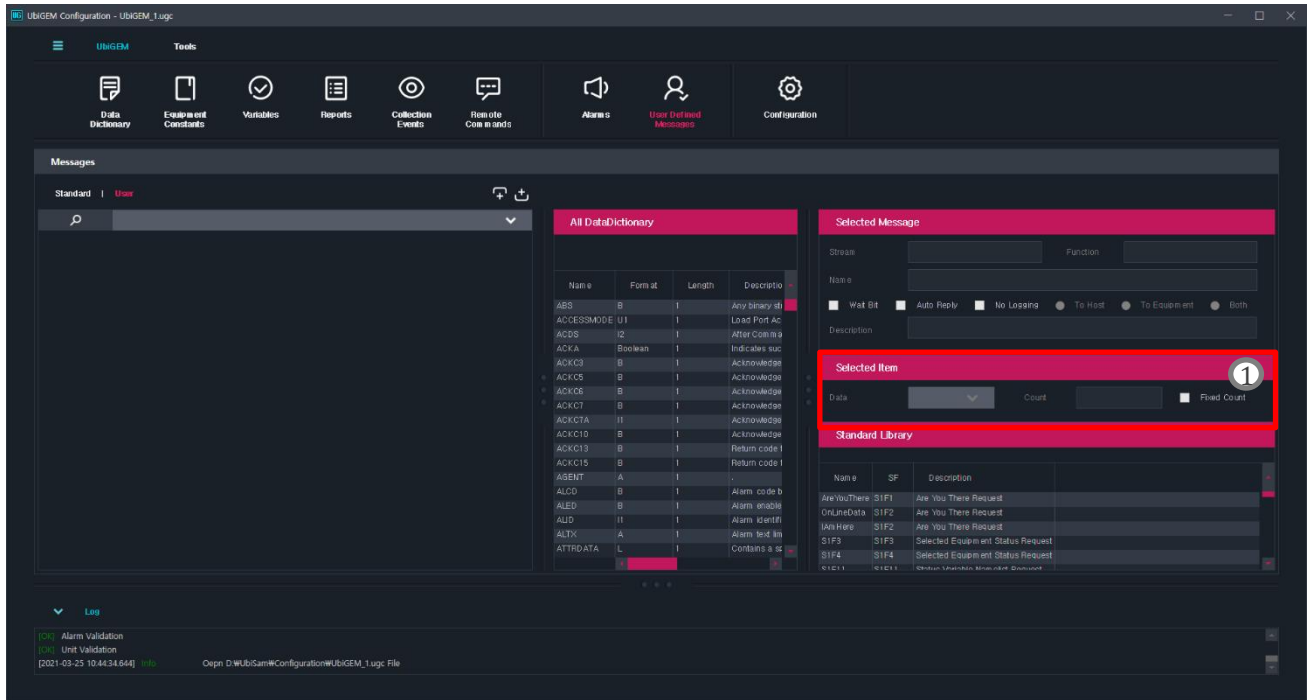
1) Name : an item name.
2) Count : the number of data items.
3) Fixed Count : the fixed number of data items.
4) Initial Value : a default input value.

12. User Defined Messages
5) Standard Library list

1) Editable by dragging and dropping to User Message

13. Helper class generation
1) C#

- After completing the setup, you can create a helper class source file for other programs to use.

  1) Click the Tools button and select C# Helper.

  2) When the following dialog box is displayed, specify the save path (Helper File), namespace, class name and click the code generation button.

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13. Helper class generation
2) C++

- After completing the setup, you can create a helper class source file for other programs to use.

    1) Click the Tools button and select C++ Helper.
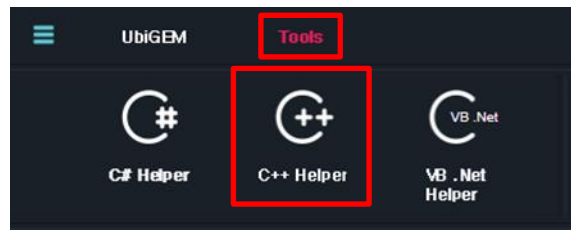
    2) When the following dialog box is displayed, specify the save path (Helper File), prefix and click the code generation button.
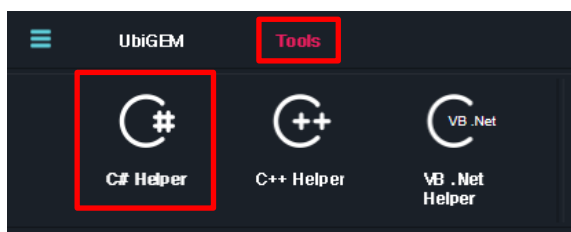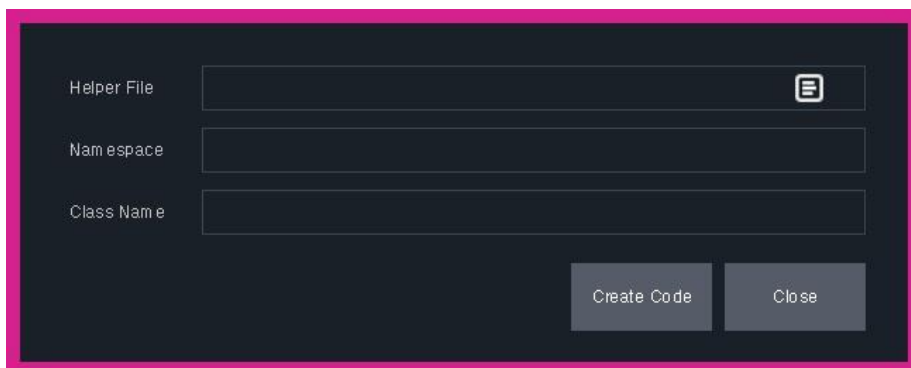
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13. Helper class generation
3) VB .Net

- After completing the setup, you can create a helper class source file for other programs to use.

  1) Click the Tools button and select VB .Net Helper.
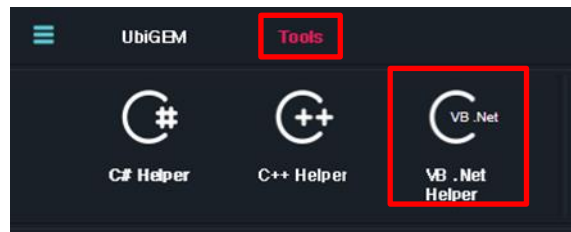
  2) When the following dialog box is displayed, specify the save path (Helper File) and click the code generation button.
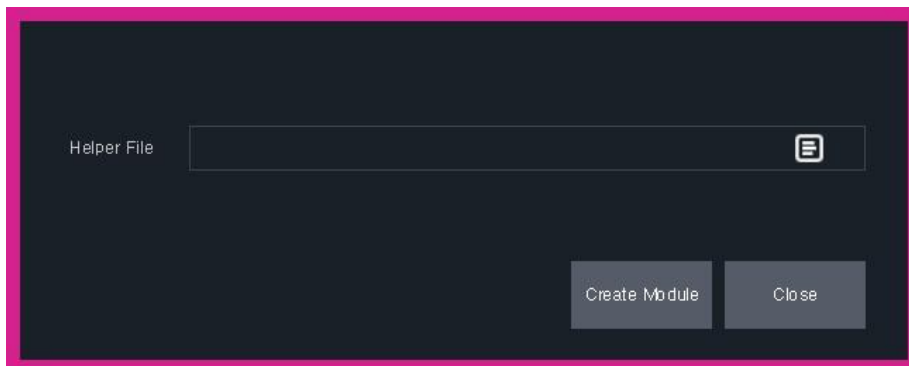
14. Appendix
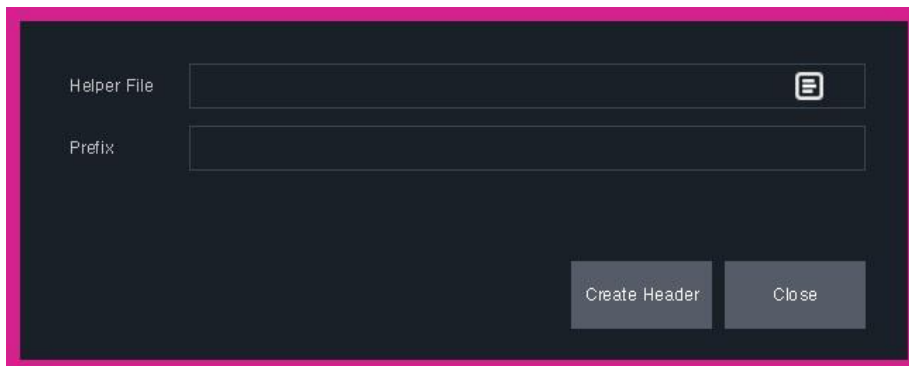## 1) Equipment Constants

Name	Default Format	Description(Comment)
InitCommunicationState	U1	Initial value of communication state when initializing the system (Default value : 7) 1 : Disabled 2 : Enabled 3 : NotCommunication 4 : WaitCRFromHost 5 : WaitDelay 6 : WaitCRA 7 : Communicating
EstablishCommunicationsTimeout	U2	After sending S1F13 (timeout event occurred), time until next sending (default: 10, unit seconds)
TimeFormat	U1	Define format for time data transmission. 0 : 12byte – YYMMDDhhmmss 1 : 16byte – YYYYMMDDhhmmsscc 2 : Extended (Max 32 byte) – YYYY-MM-DDhh:mm:ss.sTZD Example) 1985-04-12T14:15:30.450Z (UTC) 1985-04-12T10:15:30.450-04:00 (local)
T3Timeout	U2	Maximum waiting time until arrival of secondary message after sending primary message (default: 45, unit: second) Allowed range: 1 ~ 120 seconds
T5Timeout	U2	The waiting time required for retrying a TCP / IP connection (default is 10, unit: second) Allowed range: 1 to 240 seconds
T6Timeout	U2	The maximum waiting time between the request and the response of the control transaction (default: 5, unit: second). Allowed range: 1 to 240 seconds
T7Timeout	U2	Maximum holding time of NOT Selected status (default value: 10, unit: second) after establishing TCP / IP communication Allowed range: 1 to 240 seconds
T8Timeout	U2	(Default value: 5, unit: second) Allowed range: 1 to 120 seconds

14. Appendix
1) Equipment Constants

Name	Default Format	Description(Comment)
InitControlState	U1	Initial value of control state (default: 1)

OffLineSubState	U1	Offline substatuses to be selected when switching to offline control state (default value: 1)
		  1: Equipment Offline
		  3: Host Offline

OnLineFailState	U1	Control states to be changed when the transition to online control state fails
		  1: Equipment Offline
		  3: Host Offline

OnLineSubState	U1	Online substatuses to be selected when switching to online control state (default value: 5)
		  4 : OnlineLocal
		  5 : OnlineRemote

DeviceID	I2	Additional variables for checking EQP during communication with host Allowed range: 1 to 32767
IPAddress	A	Address for TCP / IP communication with Host (default value: 127.0.0.1)
PortNumber	U2	Port number for TCP / IP communication with Host (default value: 0)
ActiveMode	Boolean	Whether to use Passive / Active mode in TCP / IP communication with host (default value: True)
LinkTestInterval	U1	Sending interval of a Link Test Message (default value: 30, unit: second)
AreYouThereTimeout	U1	Timeout period from S1F1 transmission until S1F2 reception
HeartbeatInterval	U1	Sending interval of a S1F1 (default value: 30, unit: second)

14. Appendix
2) Variables

Name	Default Format	Description(Comment)
Clock(SV)	A	Define format for time data transmission 12 byte – YYMMDDhhmmss 16 byte – YYYYMMDDhhmmsscc
ALCD(SV)	B	Alarm Code Bit 8 : 1 – alarm set 　　　　0 – alarme Clear Bit 1 ~ 7 : alarm category 0 – Not used 1 – Personal safety 2 – Equipment safety 3 – Parameter control warning 4 – Parameter control error 5 – Irrecoverable error 6 – Equipment status warning 7 – Attention flags 8 – Data intefrity >8 – Other categories
AlarmSet(SV)	L	
ControlState(SV)	U1	Current control state of EQP 1 : Equipment Offline 2 : Attempts Online 3 : Host Offline 4 : Online Local 5 : Online Remote
ProcessState(SV)	U1	Current processing state of EQP
PreviousProcessState(SV)	U1	Previous processing state of EQP
MDLN(SV)	A	Model name
SOFTREV(SV)	A	Software revision (version)
PPChangeName(DVVAL)	A	
PPChangeStatus(DVVAL)	U1	PP change status
ChangedECID(SV)	L	Variable used to report when the value of Equipment Constants has changed: list of changed ECIDs Collection Event – Equipment Constants Changed

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14. Appendix
2) Variables

Name	Default Format	Description(Comment)
ChangedECV(SV)	L	Variable used to report when the value of Equipment Constants has changed: list of changed ECVs Collection Event – Equipment Constants Changed
ChangedECList	L	Variable used to report when the value of Equipment Constants has changed: list of changed ECID/ECVs (L2) Collection Event – Equipment Constants Changed

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14. Appendix
3) Collection Event

Name	Description(Comment)
Offline	Events reported when switching to offline state
OfflineOnHost	Event reported when Host switches Offline
OnlineLocal	Events reported when switching to Online-Local state
OnlineRemote	Events reported when switching to Online-Remote state
ControlStateChanged	Event to report when the control state is changed Use ControlStateChanged if Offline, OnlineLocal, or OnlineRemote events are not used
EquipmentConstantChanged	Event to report when the value of Equipment Constants is changed When the SetEquipmentConstants method is called, this event is automatically reported
EquipmentConstantChangedByHost	An event that reports when the value of Equipment Constants changed by S2F15 (New ECV Send) of the host. This event is automatically sent when S2F15 (New ECV Send) is received.
ProcessProgramChanged	Event to report when the status of the process program is changed It is used when the specific process program is added / changed / deleted
ProcessStateChanged	Event to report when the process state of EQP is changed
AlarmSet	Event reported when an alarm occurs in EQP (can be used in conjunction with S5F1)
AlarmClear	Events that report when an alarm is deactivated in EQP
LimitMonitoringBase	Base event number (LimitMonitoringBase + LimitID) used to separate by CEID the events reported when an limit monitoring event occurs

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