7. Event Log

This chapter explains how to set and use Event Log.

7.1. Overview

The following are the basic steps to use Event Log:

1. Define event content and trigger condition.
2. Trigger event according to the condition.
3. Save the event log to the specified device.
4. View the process of event by using the relevant objects.

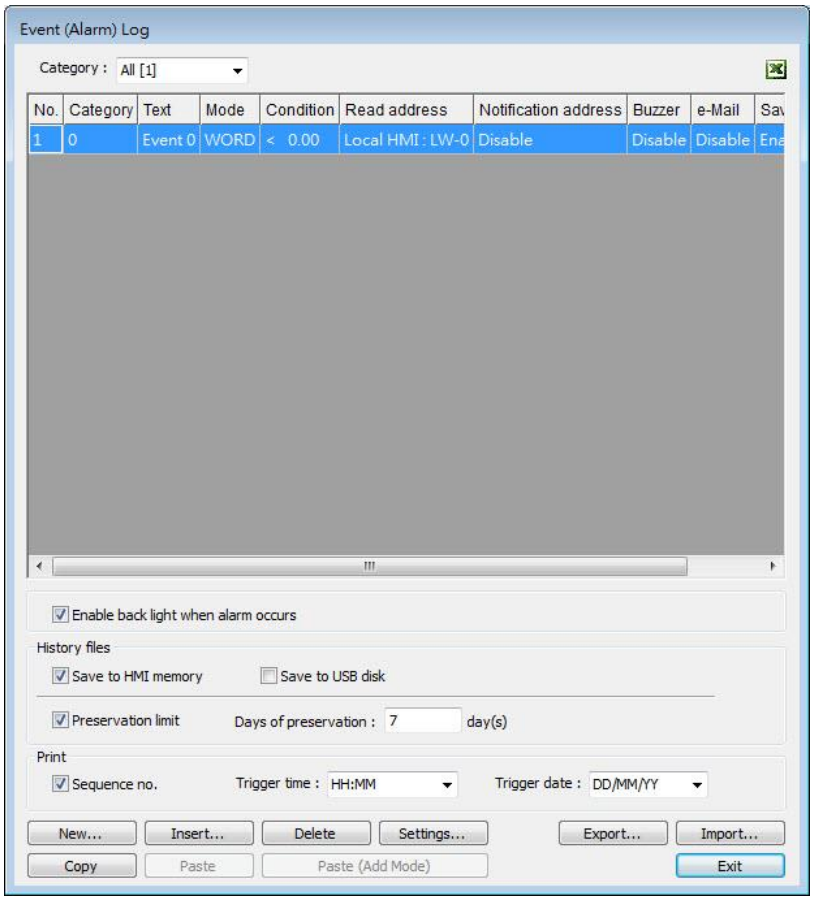
This chapter will explain how to set and use Event Log.

 Click the icon to watch the demonstration film. Please confirm your internet connection before playing the film.

7.2. Event Log Management

Firstly, define the event content then use Alarm Bar  , Alarm Display  , Event Display  objects to view the process of the whole event from triggering→waiting to be processed→ return to normal. The upper limit for the number of event logs is 10000.

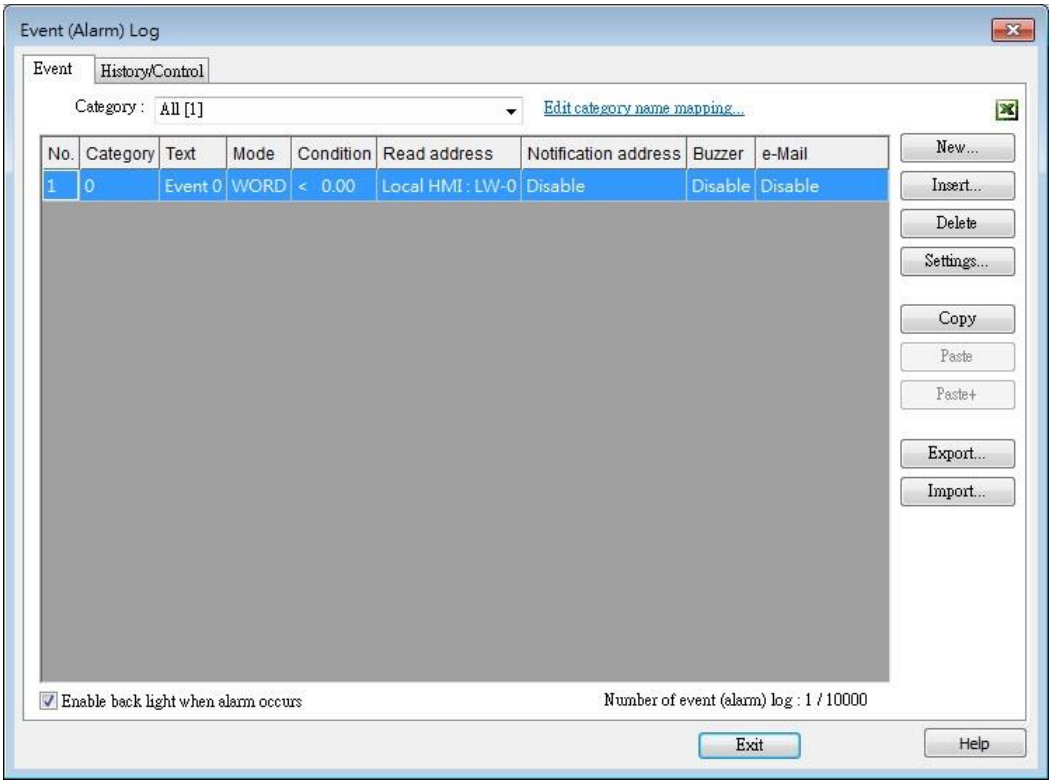
7.2.1. eMT, iE, XE, mTV, iP Series



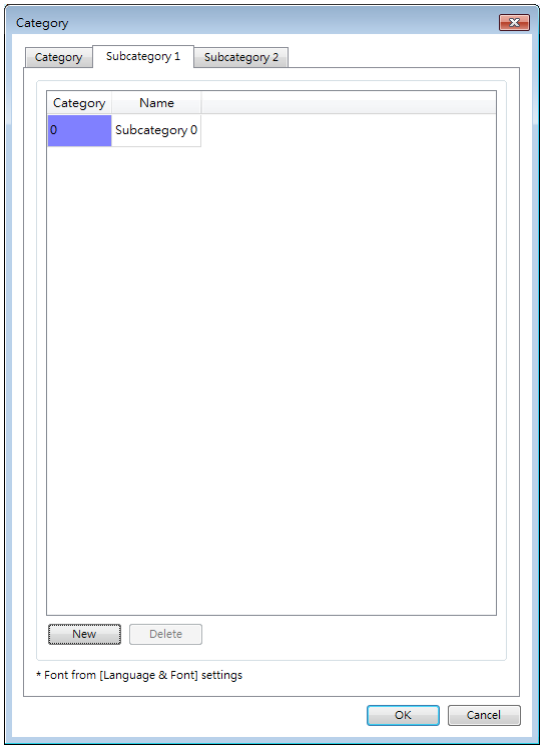
Setting	Description
Category	Classifies events by dividing them into 0 ~ 255 categories. Select one category to add or view event log. In the bracket "[ ]", it shows the number of events are in this category.
History files	Saves event log files to the specified location. Once an event occurs, the HMI immediately saves the history file. When executing On-line or Off-line Simulation on PC, the files will be saved in the HMI_memory / SD_card / USB folder under the installation directory. **Preservation limit** This setting determines the maximum number of Event Log files to be preserved in HMI memory. This does not include the file generated today. That is, if [Days of preservation] is set to 2; the two latest files excluding the file generated today will be kept. The files that are not within the range will be deleted automatically for saving the storage space.

Print	In [System Parameter Settings] » [Model], select a printer and set the printing format.
Copy	Copy the selected item.
Paste	Overwrites the selected item with the new items. A message window will pop up to confirm this operation.
Paste (Add Mode)	Appends as a new entry.

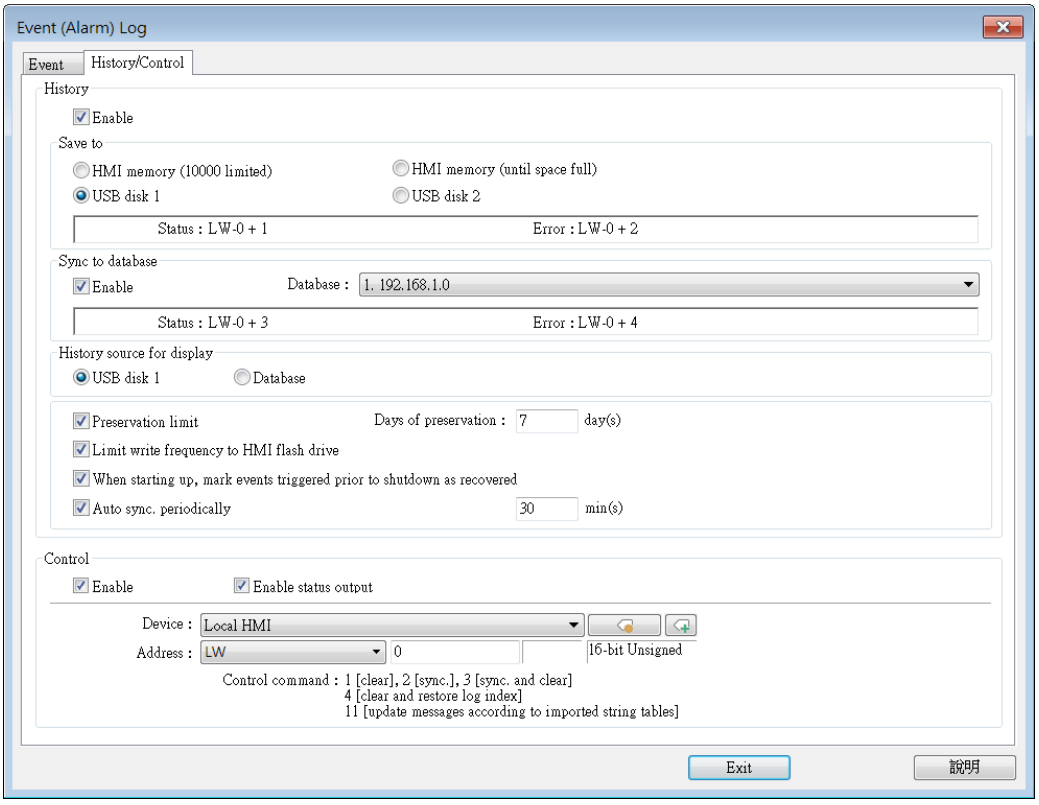
7.2.2. cMT, cMT X Series



Setting	Description
Category	Classifies events by dividing them into 0 ~ 255 categories. Select one category to add or view event log. The number of events in this category is shown in the bracket "[ ]". **Edit category name mapping…** Opens a category name table which allows editing corresponding category names. Subcategories can also be added in this table in addition to the exiting categories. The maximum allowable number of entries in each subcategory is 256 (0~255) entries.



Copy	Copies the selected item.
Paste	Overwrites the selected items with the clipboard contents. A message window will pop up to confirm this operation.
Paste +	Appends the clipboard contents to the end of the list.

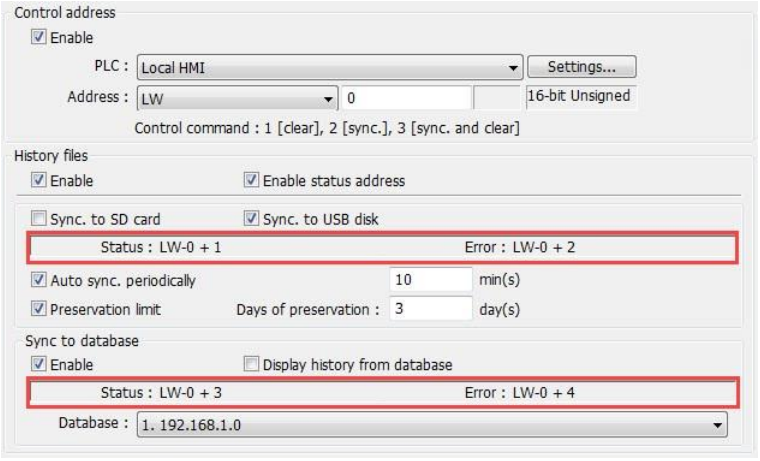


Setting	Description
History	Saves the Event Log data to HMI memory (10000 limited or until space full), SD card, USB disk, or database (by synchronizing Event Log file to database server). The rules of saving the data are: ■ When [HMI memory (10000 limited)] is selected, and the number of events reaches 10000, the system will delete the earliest 1000 events on HMI and keep on saving the data to HMI memory. . ■ When [HMI memory (until space full)] is selected, the system will keep on saving data to HMI memory, in this case, the data may not be synchronized to database server. When the cMT / cMT X HMI memory storage is full, the system will delete the earliest 1000 records and keep on saving data to HMI memory. ■ When USB disk or SD card is selected, and the number of events reaches 10000, the system will automatically save the data to the external device and delete the earliest 1000 events on HMI. ■ To synchronize the data to database server, select a database that has been configured before. ■ If the external device already contains some events, the new data is appended without overwriting the original data each time in synchronization. ■ When the external device is removed from HMI, or HMI is disconnected from database server, if the connection is recovered before the number of events exceeds 9000, the events occur during disconnection will be saved to HMI. If the number of events exceeds 9000 during disconnection, the earlier data will be deleted, and cannot be synchronized by recovering connection.
History source for display	Event Log displays the history data read from the designated source.
Preservation limit	This setting determines the maximum number of Event Log files to be preserved in HMI memory. This does not include the file generated today. That is, if [Days of preservation] is set to 2; the two latest files excluding the file generated today

	will be kept. The files that are not within the range will be deleted automatically. The system checks the time of the files and deletes earlier files only during synchronization.
Limit write frequency to HMI flash drive	When enabled, the system will store operation logs on the HMI at intervals of 10 seconds. To prevent the loss of operation log data between two storage actions caused by power-off, EasyBuilder Pro provides the system register LB-9034. By sending an ON signal to this register, the system will initiate a data storage process.
When starting up, mark events triggered prior to shutdown as recovered	When enabled, the system will automatically recover events triggered before shutdown. Range: The last 10,000 events stored in the HMI memory.
Auto sync. periodically	Data will be automatically synchronized to the designated external device in the specified time interval, regardless of the rules explained above. Unit: Minute(s) Range: 1~1440
Control address	If select [Enable] check boxes under both [Control address] and [History files], entering a specific value in the control address sends the corresponding command.

Value	Command
1	Clear the event log on HMI
2	Synchronize event log to the external device
3	Synchronize event log to the external device and then clear the event log on HMI
4	Use the history data stored in USB disk / SD card / database after changing HMI
6	Free unused storage space reserved for event logs (*.db). This command can be used when historical data is saved to HMI memory (until space full).
11	Update event log message contents by reading a new String Table
12	Reset the event occurrence count displayed in the Event Display and Alarm Display. This is effective only when the event does not have the [Read and reset occurrence] address enabled.

	If none of these values is entered, the system will synchronize data in the same rules as [History] setting.
Status Error	When LW-n is used as the control address, the four consecutive addresses following LW-n (LW-n+1~LW-n+4) will show status and error, please see the prompt in the settings dialog box.



Value	Status address: LW-n+1 and LW-n+3
0	Disconnected from external device or database
1	Connecting with external device or database
2	Connected with external device or database
3	Storing records into the archive. When this is done, the value returns to 2.
Value	Error address: LW-n+2 and LW-n+4
0	None
1	Unknown error
2	Failed to connect with external device or database
3	Access denied
4	Wrong database name
5	Inconsistent data format
6	Failed to open table
7	Failed to create table
8	Failed to write table
9	Failed to open database
10	Database is corrupted

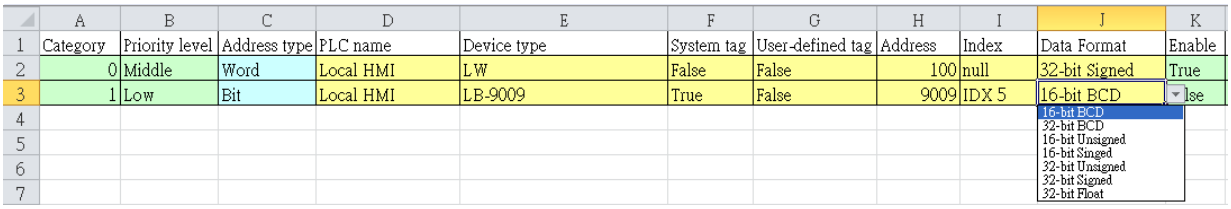
Note

- Before removing SD card / USB disk, or disconnecting from database server, please synchronize event log data by using control address.
- When monitoring multiple HMIs by using cMT Viewer, the Start Button on the current HMI screen may flash to indicate that an error has occurred on another HMI that is also being monitored, reminding the user to switch HMI and check the event.

- The [When starting up, mark events triggered prior to shutdown as recovered] option does not apply to events stored in the HMI memory exceeding 10,000 entries.

7.2.3. Excel Editing

Click on the Excel icon in Event Log setting dialog box to open the Excel template for a reference of editing. This template is under the installation directory, the file name is EventLogExample.xls. This template includes the ready-made dropdown lists and validation mechanism.



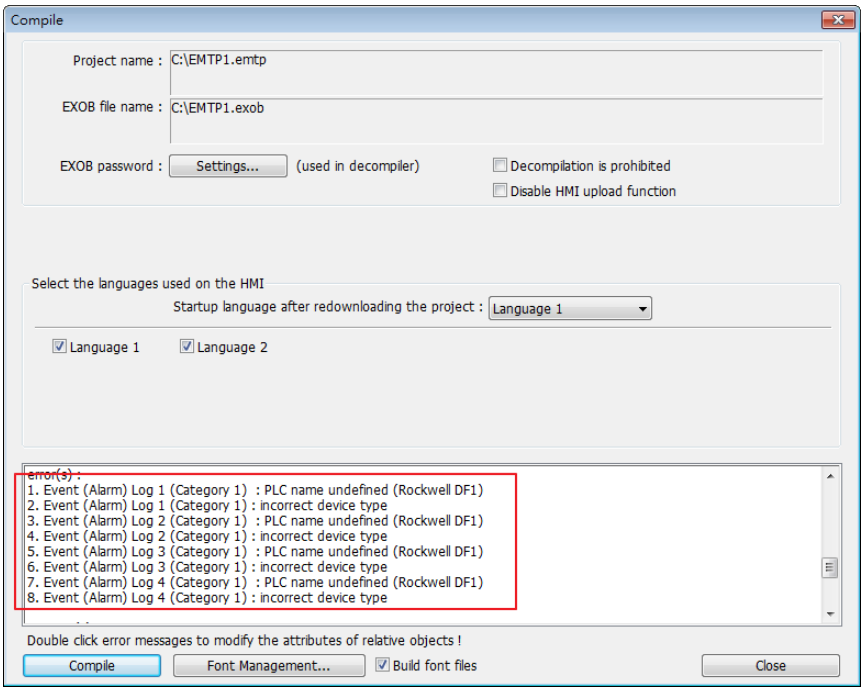
	A	B	C	D	E	F	G	H	I	J	K
1	Category	Priority level	Address type	PLC name	Device type	System tag	User-defined tag	Address	Index	Data Format	Enable
2	0	Middle	Word	Local HMI	LW	False	False	100	null	32-bit Signed	True
3	1	Low	Bit	Local HMI	LB-9009	True	False	9009	IDX 5	16-bit BCD	lse
4										16-bit BCD	
5										32-bit BCD	
6										16-bit Unsigned	
7										16-bit Singed	
										32-bit Unsigned	
										32-bit Signed	
										32-bit Float	

Note

- [System tag] and [User-defined tag] cannot be set to true simultaneously, otherwise, the system will view the User-defined tag to be a System tag, and [User-defined tag] to be false. If setting [Device type] to [User-defined tag], please set [System tag] to false.
- When setting [User-defined tag] to true, if the system compares the [Device type] with the user-defined tag in the system, and no suitable tag is found, the system will set the [User-defined tag] in event log to false
- [Color] format is R:G:B, each should be an integer form 0 to 255.
- Before importing Label Library / Sound Library, please make sure the library names exist in the system.

7.2.4. Quick View of Errors

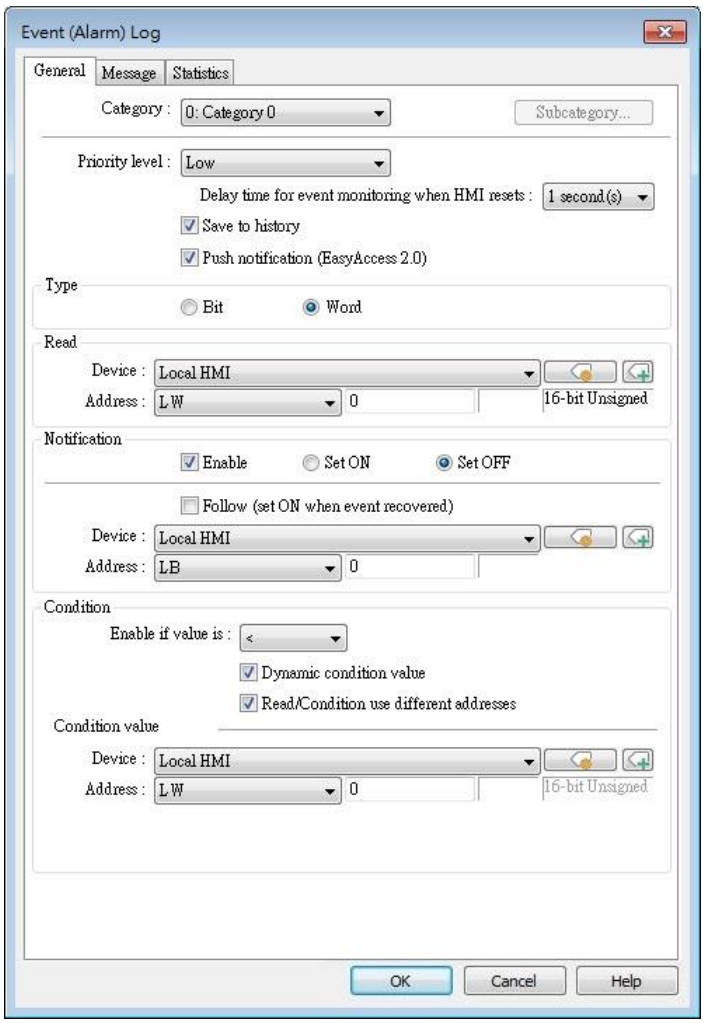
When compiling the project, the errors in Event Log will be displayed in the Compile window. To open Event Log and view the errors, double click on the item in the Compile window.

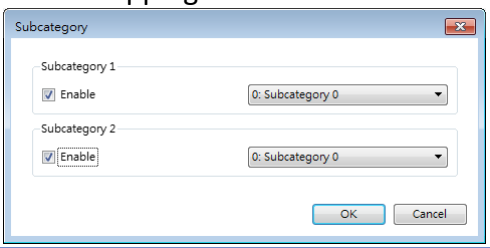


7.3. Creating a New Event Log

General Tab

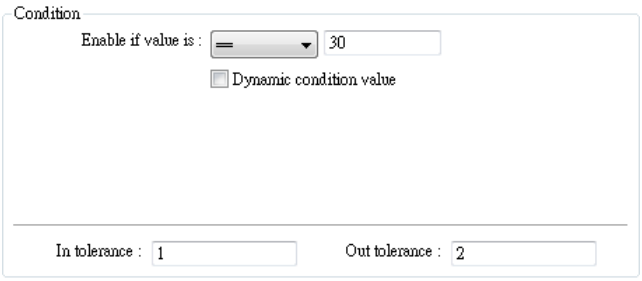
Click [New] in the [Event (Alarm) Log] dialog box.



Setting	Description
Category	Select event category, the range is from 0 to 255.
Subcategory	Add this Event Log into the subcategories in the category name mapping table. 
Priority level	Events in Alarm Bar / Alarm Display are ordered by priority level first and then by time.
Save to history	In Event Log main settings, if [Save to HMI memory] check box under [History files] group box is selected, selecting [Save to history] here determines whether each separate event should be saved as historical file.
Push	When an event occurs, EasyAccess 2.0 push notifications can be sent to iOS®/Android® devices.

notification (EasyAccess 2.0)	
Delay time for event monitoring when HMI resets	This feature is used to set the delay time of Event Log after HMI reboot, in order to avoid false alarm that occurs upon HMI reboot due to uninitialized values. This feature is often used with [Dynamic condition value]. The delay time only occurs once upon HMI reboot.
Read address	The system reads data from this address to check if the event matches the trigger condition.
Notification	When enabled, the system will set the specified address ON or OFF when the event is triggered. **Follow** The notification bit will reset to its original state once the alarm condition returns to normal. For example, when the alarm is triggered, the state of the notification bit turns ON. When the alarm condition returns to normal, and [Follow] check box is selected, the state of the notification bit turns OFF.
Condition	When [Bit] is selected, Event Log will detect the state of a Bit address. When [Word] is selected, Event Log will detect the value of a Word address to check if it is greater than, less than, or equals to a specified value. See Example 1 and Example 2. **Dynamic condition value** Allows online change of the comparison value for trigger condition when the condition is a Word address type. If [Read/Condition use different addresses] is not selected, the source of condition value will be the next consecutive address from [Read address]. **Read/Condition use different addresses** Allows selecting the Word address type to be the source of condition value.

Example 1



The setting above indicates:

When [Read address] value is greater than or equals to 29 (= 30 - 1)

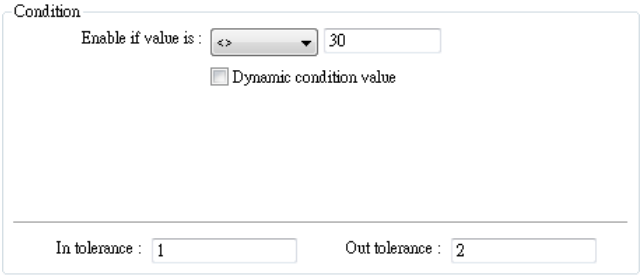
Or less than or equals to 31 (= 30 + 1), the event will be triggered. The trigger condition:

29 ≤ [Read address] value ≤ 31

After the event is triggered, when [Read address] value is greater than 32 (= 30 + 2) or less than 28 (= 30 - 2) the system will return to normal condition:

[Read address] value < 28 or [Read address] value > 32

Example 2



The setting above indicates:

When [Read address] value is less than 29 (= 30 - 1)

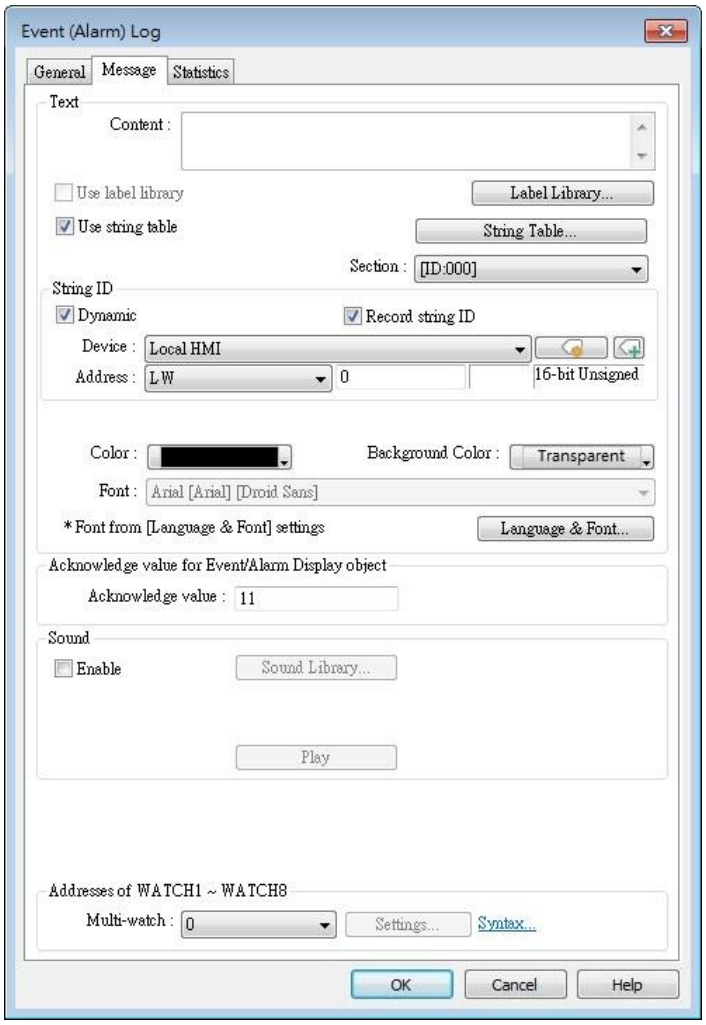
or greater than 31 (= 30 + 1), the event will be triggered. The trigger condition:

[Read address] value < 29 or [Read address] value > 31

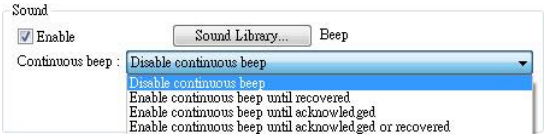
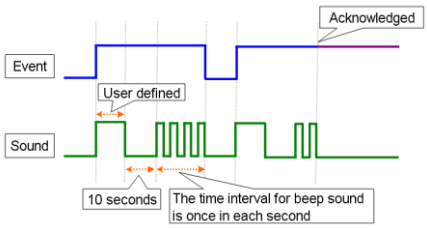
After the event is triggered, when [Read address] value is greater than or equals to 28 (= 30 - 2) or less than or equals to 32 (= 30 + 2) the system will return to normal condition:

28 ≤ [Read address] value ≤ 32

Message Tab



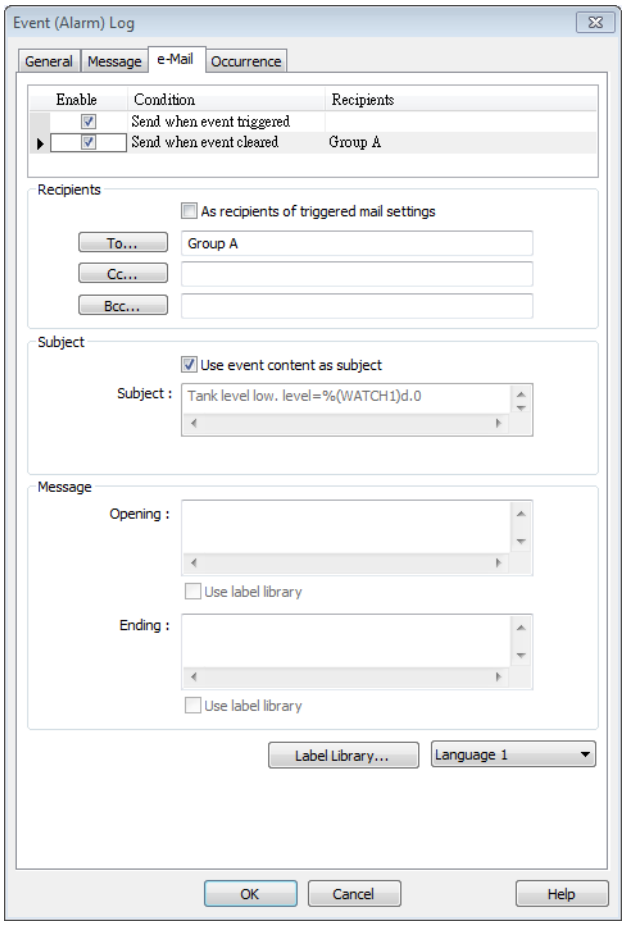
Setting	Description
Content	The text content displayed in [Alarm Bar], [Alarm Display], and [Event Display] objects. Use the formats in the following two examples of WATCH addresses to use register data in content. The content in Label Tag Library and String Table can be used in the Event Log message.
String ID	[Event Display] and [Alarm Display] objects display messages according to the String ID in the designated register. **Record String ID** With this option selected, when an event occurs, the string's ID number will be recorded. Message of the event triggered before can be retained.
Font / Color / Background	The font / color / background color can be set respectively

color	for each event. The font and color settings determine how [Alarm Bar] shows the text, while The font, color, and background color settings determine how [Alarm Display] and [Event Display] show the text. These settings are not available in the [Event Display] under History mode.
Write value for Event/Alarm Display object	When an event in the [Event Display] or [Alarm Display] object is acknowledged, the acknowledge value is written to the specified [Acknowledge] address. This feature can be used with an Indirect Window object's read address so that when the acknowledge value is written, a window pops up as a prompt about how to handle the alarm. As illustrated below, when an event is selected and the acknowledge value is set to 11, window 11 will pop up, displaying the alarm handling prompt.  Click the icon to download the demo project. Please confirm your internet connection before downloading the demo project.
Sound	 If enabled, the selected sound will be played when an event is triggered. Continuous beep can also be enabled, which only stops when the event is acknowledged or recovered. For continuous beep, a delay time can be set between triggering the alarm and the start of beeping. 

	Click the icon to download the demo project. Please confirm your internet connection before downloading the demo project.
Address of WATCH 1 ~ 8	Users can set how the value is displayed in the designated watch address when an event occurs. Up to 8 watch addresses can be used simultaneously. Click [Syntax] to see how to use the syntax to embed device data in the content of an event log displayed in the watch address. Click the icon to download the demo project. Please confirm your internet connection before downloading the demo project.

e-Mail Tab

Please enable this function in [System Parameter Settings] » [e-Mail] first.



Setting	Description
Recipients	Select the [To], [Cc], and [Bcc] recipients.
Subject	Enter the subject of the e-mail.
Message	Enter the [Opening] and [Ending] content of an e-mail.

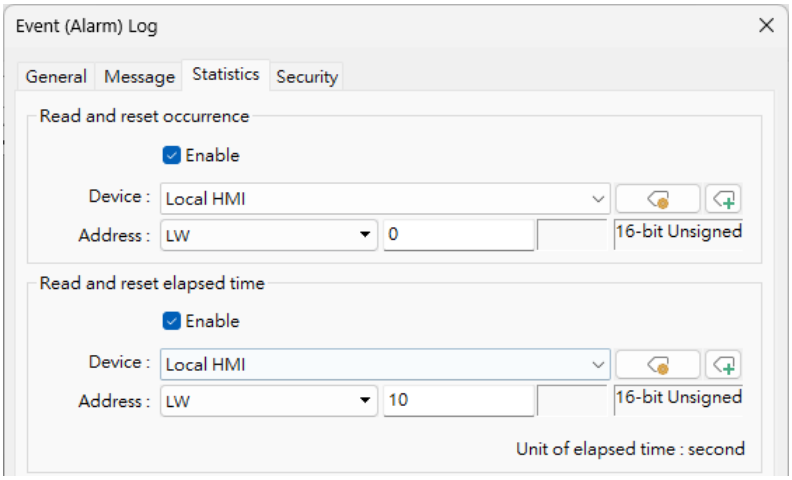
Attach	If the [Contains a screenshot of window] check box is selected, the screenshot of the selected window will be attached.

Note

- The priority level of an event determines its importance in e-mail delivery.

Event Priority Level	Email Importance
Emergency	High
High / Normal	Normal
Low	Low

Statistics Tab

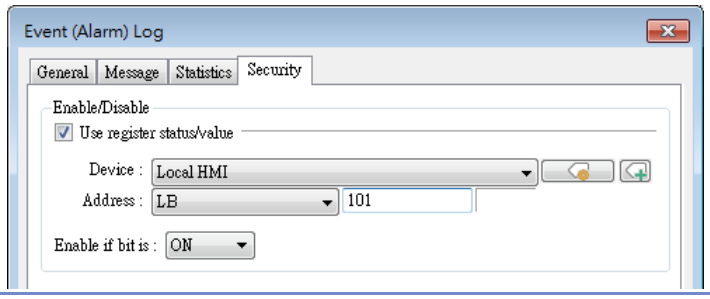


Setting	Description
Read and reset occurrence	If enabled, the number of occurrence of the event after HMI startup will be written to the designated word address. The word address can be read / written.
Elapsed time read and reset address	If enabled, from an event occurs to its recovery, the elapsed time (in seconds) will be written to the designated word address. The word address can be read / written.

Click the icon to download the demo project. Please confirm your internet connection before downloading the demo project.

Security Tab

With security settings enabled, an address and a condition can be set so that an event is recorded only when the state of the specified address meets the preset condition.



Setting	Description
Use register status/value	With this option enabled, an event will be recorded only when the state of the specified address meets the preset condition.

Note

- When an event is triggered with the security settings enabled, the event can be acknowledged on Event Display or Alarm Display even when the security settings are disabled after the event is triggered.
- With security settings enabled, the event's address will not communicate with the device if the preset condition is not met.