

**Description:** Guide to configuring Triggers.

Introduction

Triggers are events that are executed when a certain condition occurs. Triggers are used by many different products in GENESIS64, such as Hyper Historian, ReportWorX64, BridgeWorX64, Schedules, etc. to perform operations whenever the predefined event occurs.

Triggers are subdivided into the following categories: **Alarm Triggers, Database Triggers, Data Triggers, Date/Time Triggers, Event Groups, Event Switches, File Triggers** and **NT Event Triggers**. After defining your trigger, you can easily browse for it using the Data Browser.

Configuring Triggers

Creating a New Event Trigger

1. Open Workbench.
2. In the tree expand Actions → Triggers.
3. In the tree-control in the left-hand pane, right-click on your desired type of Event trigger and add the trigger.

**NOTE:** You can select to create a new Folder instead of a new Item. Folders are used to logically organize the Event Triggers.

Common Configuration Elements

Although there are many different types of triggers, they work in a very similar way and their configurations contain common elements. Usually you are presented with two tabs.

The **General** tab allows you specify the description, Time Zone, the enable on tag, and other options. This is where each trigger type would have the specfic settings for the trigger. The enable on tag can optionally ensure that the trigger is available only when the selected tag has good quality and its value is not zero.

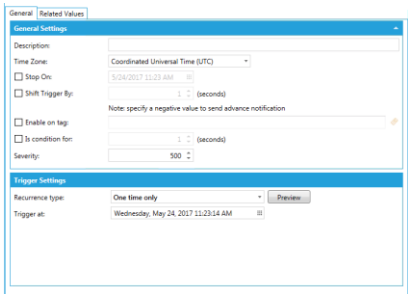


Figure 1 - General Properties for Date/Time Trigger

The **Related Values** tab is a place where you can specify values that can be read when the trigger occurs. The value field can hold either a constant value or a tag. For tags, the resulting related value will be the value of the tag at the time the trigger occurred.

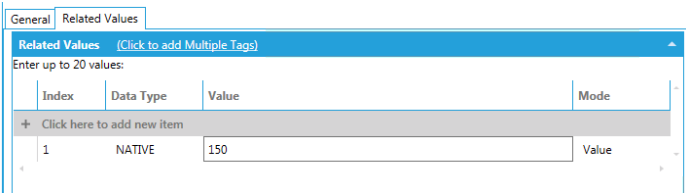


Figure 2 - Data Trigger Related Values

Trigger Types

Alarm Triggers

Alarm Triggers execute when a specified alarm condition is detected. To configure an alarm trigger, create a new alarm subscription to correspond with the alarm trigger. This can be filtered by severity or by picking an alarm area as the subscription tag. The trigger executes based on the current alarm subscription/filter properties and upon one of the following conditions:

- An **Alarm** or an **Event** occurs
- A value **Return to Normal** after an alarm has occurred
- An alarm is **Acknowledged**
- **On all above conditions**

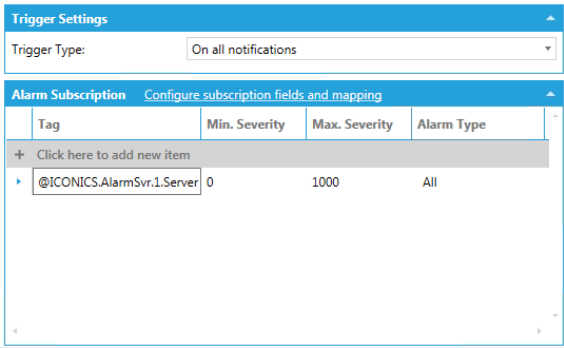


Figure 3 - Alarm Trigger

Database Triggers

Database Triggers fire when changes are detected in specified database tables. When making the connection to a database tag, you would need to point this to a GridWorX database or a specific GridWorX dataset tag. The trigger can be configured to fire when



# Actions - Triggers



## APPLICATION NOTE

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any of the fire conditions **become true** or while the fire condition **remains true**.

Figure 4 - Database Triggers

### Data Triggers

Data Triggers fire for any of the conditions in the following list. There are two different types of Data triggers, the event trigger and the condition trigger. The event trigger is a single instance for the trigger event which is based on state change (such as changing from false to true). The condition trigger is stays at on as long as the condition is met:

#### Event Triggers

- There is any **change** to the input tag quality, timestamp, or value
- The input data value becomes **TRUE**
- The input data value becomes **FALSE**
- There is any **change** to the input tag value only

#### Condition Triggers

- The input data is **TRUE**
- The input data is **FALSE**

Figure 5 - Data Trigger Settings

### Date/Time Triggers

Date/Time Triggers execute an event periodically according to a specified recurrence pattern. The recurrence pattern can be daily, weekly, monthly or yearly. The recurrence types are mainly:

- **One time only** – Where you can specify a particular single time occurrence,
- **Time interval** – Where you can specify occurrence in intervals from multiple of days hours, minutes and seconds down to a minimum of 100 milliseconds).
- **Specific Dates and Times** – Where you can specify times of recurrence as needed.

Figure 6 - Date/Time Trigger

### Event Groups

Events Groups and Event Switches are not additional types of triggers but have special combinatory functions. An Event group allows different type of triggers to be grouped together under one trigger. Event group triggers will fire when **any event trigger from its list** of triggers is executed.

Figure 7 - Event Groups

### Event Switches

Event Switches contain a list of triggers and an input value tag. A single event from the list of tags is selected among different triggers based on the input value. This means **only one trigger from the trigger list** can fire the Event Switch trigger at a time.

Figure 8 - Event Switch Options



### File Triggers

File Triggers are events that are file system related. These events include:

- On File or Subfolder Create
- On File or Subfolder Delete
- On File or Subfolder Rename
- On File or Subfolder Size Change
- On File or Subfolder Last Access Time Change
- On File or Subfolder Last Write Change
- On File or Subfolder Attributes Change

You can filter certain files such as \*.txt files, and choose whether or not to include subfolders. You can also configure the trigger to ignore actions on the same file or subfolder that occurs within a period of time, in order to prevent "chattering" triggers when you know the event you are looking for will occur many times in succession.

The screenshot shows the 'Trigger Settings' dialog box for a File Trigger. It includes fields for 'Folder to scan' (set to 'C:\') and 'Filter'. Under 'Trigger Conditions', several checkboxes are listed, with 'On File or Subfolder Create' and 'On File or Subfolder Delete' checked. At the bottom, there is a field for 'Ignore actions on the same file or subfolder occurring within' set to '0' seconds.

Figure 9 - File Trigger

### NT Event Triggers

NT Event Triggers occur when certain entries are added to the Windows event log. The fire conditions can be monitored in various **Categories** and **Subcategories**, such as the Event Level or different keywords for the event. Another option to choose specific events is to only pick a certain Event ID from the log.

The screenshot shows the 'Trigger Settings' dialog box for an NT Event Trigger. It includes dropdowns for 'Category' (set to 'Application') and 'Subcategory'. Under 'Event Level', checkboxes for 'Critical', 'Warning', 'Error', and 'Information' are shown. A list of keywords is displayed, including 'AuditFailure', 'AuditSuccess', 'CorrelationHint2', 'EventLogClassic', and 'ResponseTime'. At the bottom, there are options for 'Duplicate Events', with 'Ignore events fired within the last' set to '10' seconds.

Figure 10 - NT Event Trigger