AVEVA™ InTouch HMI
formerly Wonderware

Alarms and Events Guide

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Chapter 1

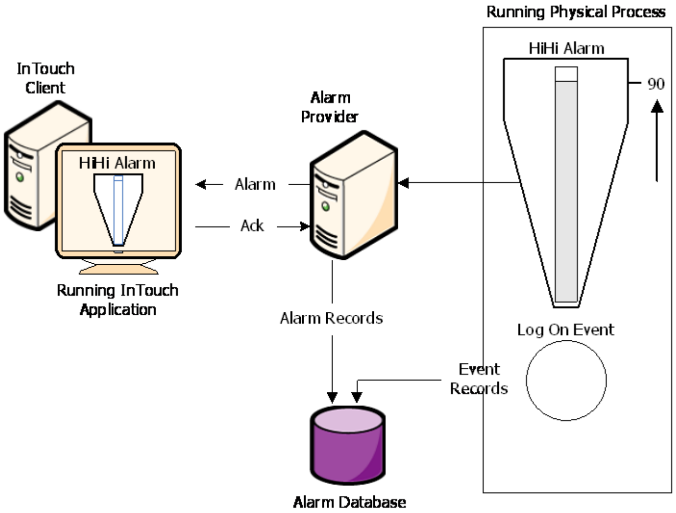
Overview of Alarms and Events

About Alarms and Events

You can create InTouch applications that generate alarms and events to notify operators about the status of process activity.

- Alarms warn run-time operators about process conditions that could potentially cause problems. Typically, you set up an alarm to trigger when a process value exceeds a defined limit. An operator must usually acknowledge the alarm.
- Events represent normal system status messages. A typical event is when a system condition occurs, such as an operator logging on to an InTouch application. Operators do not have to acknowledge events.

The following figure shows how the InTouch HMI handles alarms and events while an application is running. Alarm and event data is saved to the alarm database.



You can configure any tag for event monitoring. An event message is logged to the alarm system each time the tag value changes. The event message includes how the value changed and whether the operator, I/O, scripts, or the system initiated the change.

About InTouch Alarms

Alarms represent warnings of process conditions that could cause problems and require an operator response. A typical alarm is triggered when a process value exceeds a user-defined limit, such as an analog value exceeding an upper threshold. This triggers an alarm to notify the operator of a problem. After the operator acknowledges the alarm, the InTouch HMI recognizes the alarm has been acknowledged.

You can configure the InTouch HMI to require an alarm to be acknowledged even if the condition causing the alarm has passed. This ensures that an operator is aware of events that caused a temporary alarm state but have returned to normal.

The main alarm states are described in the following table:

Alarm State	Condition
ACK	Alarm was acknowledged.
ALM	Alarm has occurred.
RTN	Tag returned from an alarm state to a normal state.

Alarm Priorities

You assign a level of priority, or severity, to an alarm. A boiler temperature limit, for example, would require a high-priority alarm, requiring immediate attention. An end of a shift alarm is a much less severe. The alarm priority usually depends upon the circumstances—the factory application, the nature of the equipment, safety, availability of backup systems, potential costs of damage, or downtime.

You assign an alarm priority when you define a tag. The priority can range from 1 to 999, with 1 being the most severe.

You can designate a range of alarm priorities to represent a classification of alarms. For example, if a process requires four levels of severity, you can create four priority ranges.

Alarm Severity	Priority Range
Critical	1 – 249
Major	250 – 499
Minor	500 – 749
Informational	750 – 999

Ranges are useful for alarm filtering. For example, you can configure an alarm display to filter out all but the critical alarms. You can create animation links, acknowledgment scripts, and filtered viewing and printing, all based on the alarm priority range.

Alarm Sub-States

A multi-state alarm includes a range of alarm sub-conditions.
For example, an analog alarm typically has several limits.

- A High and Low threshold set the boundaries for the normal operating range.
- HiHi and LoLo limits mark the extreme deviations from the normal range of values.

A boiler temperature level can be in the alarmed condition for any one of these sub-states. The boiler temperature can also transition between any two sub-states while continuing to remain in the overall alarmed condition.

Alarm Acknowledgement

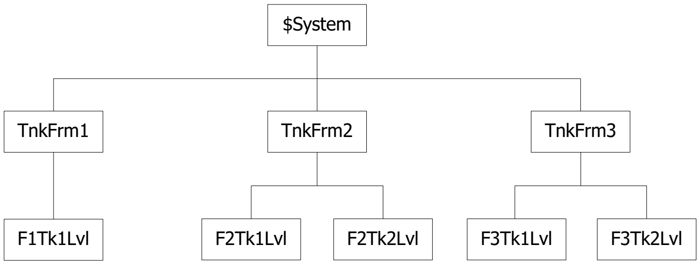
When an alarm occurs, the run time operator (or system) must acknowledge the alarm. Acknowledgement merely indicates that someone is aware of the alarm. This is separate from taking corrective action, which might not happen right away. It is also separate from whether the alarm condition returns to normal—which it might do on its own, even without any external intervention.

A high or medium priority alarm usually requires immediate acknowledgment, while a very low-priority alarm might not. Although the condition that generated the alarm may go away (for example, a temperature rises too high and then becomes lower again), the alarm itself is not considered resolved until it is acknowledged.

Alarm Groups

You can group alarms to make tracking and management easier. Alarm groups are logical representations of different areas of a factory, pieces of equipment, operator responsibility, or a manufacturing process.

For example, the following figure shows a three-tier alarm group hierarchy for a tank farm application.



Alarm groups are useful for filtering in alarm displays, alarm printers, and acknowledgment scripts.

Every tag is associated with an alarm group. By default, tags are assigned to main $System group. You can create a hierarchy of additional alarm groups under the $System group, up to a maximum of 32 levels.

You create alarm groups and associate tags with them while you are defining your tags in the Tagname Dictionary.

Alarm groups and group variables are not compatible with SmartSymbols. You can't use references to alarm groups or group variables in a SmartSymbol.

About InTouch Events

An event is a detectable occurrence of something happening within the system, which may or may not be associated with an alarm. A transition into or out of an alarmed state is one kind of event. An event might also be an operator action, a change to the system configuration, or some kind of system error.

An event is different than a condition. A condition can persist for minutes, hours, days, or weeks. An event is momentary; it takes place and is immediately over. An alarm is a condition; an alarm notification is an event.

Events represent normal system status messages and do not require an operator response.

When you define a tag to do event monitoring, you can choose to have event messages printed or logged to the alarm system each time the tag value changes. The event message includes how the value changed and whether the operator, I/O, scripts or the system initiated the change.

An event can be one of the following types:

Event	Condition
OPR	The operator modified the tag value using the Value input.
LGC	A QuickScript modified the tag value.
DDE	The tag value was poked from a DDE client.
PROT	The tag value change was initiated from an Industrial graphic, either from a custom property or from a pushbutton in the Industrial graphic.
SYS	A system event occurred.
USER	$Operator changed.

The SYS and USER events are generated by the system regardless of whether event logging is enabled for any tags. DDE, OPR, and LGC events relate to tag values and are only generated for tags that have event logging enabled.

Types of InTouch Alarms

Within the InTouch HMI, alarms are classified into general categories based on their characteristics. These categories are known as Class and Type. The Distributed Alarm system categorizes all alarms into five general conditions: Discrete, Value, Deviation, Rate-of-Change, and SPC.

Alarm Condition	Distributed Class	Distributed Type
Discrete	DSC	DSC
Value - LoLo	VALUE	LOLO
Value - Low	VALUE	LO

Alarm Condition	Distributed Class	Distributed Type
Value - High	VALUE	HI
Value - HiHi	VALUE	HIHI
Deviation - Major	DEV	MAJDEV
Deviation - Minor	DEV	MINDEV
Rate-of-Change	ROC	ROC
SPC	SPC	SPC

You associate each InTouch tag with an alarm condition when you define the tag. Depending upon a tag's type, you can define one or more of the alarm classes or types for it.

Discrete Alarms

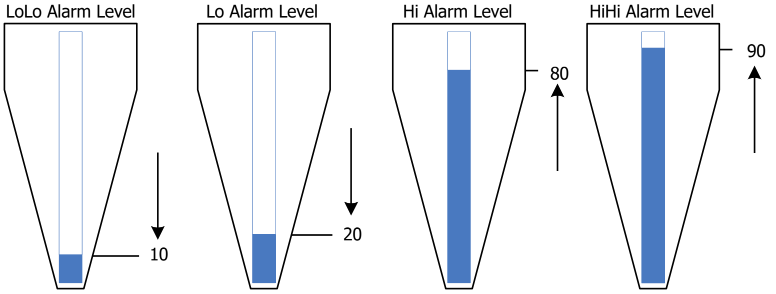
A discrete alarm corresponds to a discrete tag with two possible states. When you create a discrete tag, you configure whether the alarmed state corresponds to the true or false state of the tag.

Analog Alarms

An analog alarm corresponds to an analog tag, which is associated with an integer or real number. Within the analog alarm type, there are several sub-types: value, deviation, and rate-of-change.

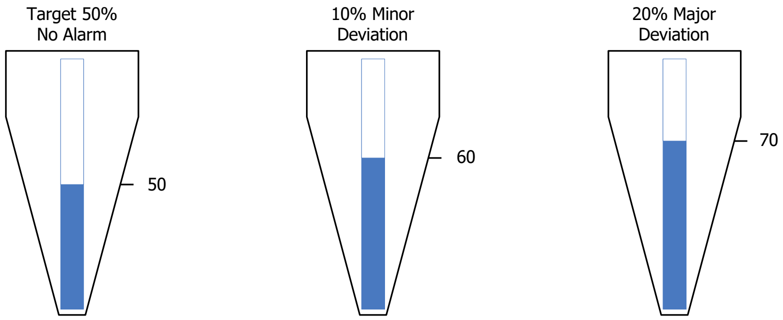
Value Alarms

The current tag value is compared to one or more predetermined limits. If the value exceeds the limit, the alarmed state is declared. You can individually configure values and priorities for the "LoLo" limit, "Lo" limit, "Hi" limit, and "HiHi" limit, and indicate whether or not each limit is to be used.



Deviation Alarms

The current tag value is compared to a target value, and then the absolute value of the difference is compared to one or more limits, expressed as a percent of the range of the tag value.



You can individually configure values and priorities for the minor deviation limit and the major deviation limit, and indicate whether or not each limit is to be used. You can also configure a value for a deviation deadband, also expressed as a percent of the tag's range. This controls the percentage (of the total range) that the tag value must change before it is evaluated to be in alarm.

For example, you configure limits as follows:

- Range of 0 to 100
- Target of 50
- Minor deviation of 10 percent, which sets the minor deviation thresholds at 40 and 60.
- Major deviation of 20 percent, which sets the major deviation thresholds at 30 and 70.
- Deadband of 10 percent

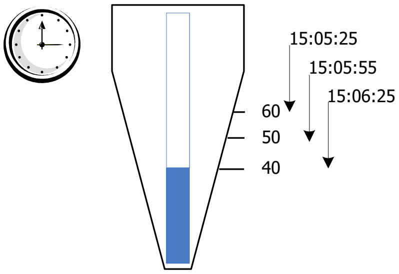
If the tag value is 39, a minor deviation alarm occurs. However, the value must change at least to 50 (40 plus the deadband of 10) before the alarm is evaluated and cleared.

If the tag value is 72, a major deviation alarm occurs. The value drop to at least 61 before the alarm is cleared.

Rate of Change Alarms

A tag's current and previous values are compared over a measured period. The rate of change of a tag's value is calculated using the previous tag value, the time of the previous change, the current tag value, and the current time.

A tag is tested for a rate-of-change alarm whenever its value changes.The one exception is the initial tag value when an application starts running in WindowViewer. In that case, the initial value is ignored and the first rate of change comparison is made between the second and third changes in a tag's value. Thereafter, rate of change measurements are made between consecutive tag value changes.



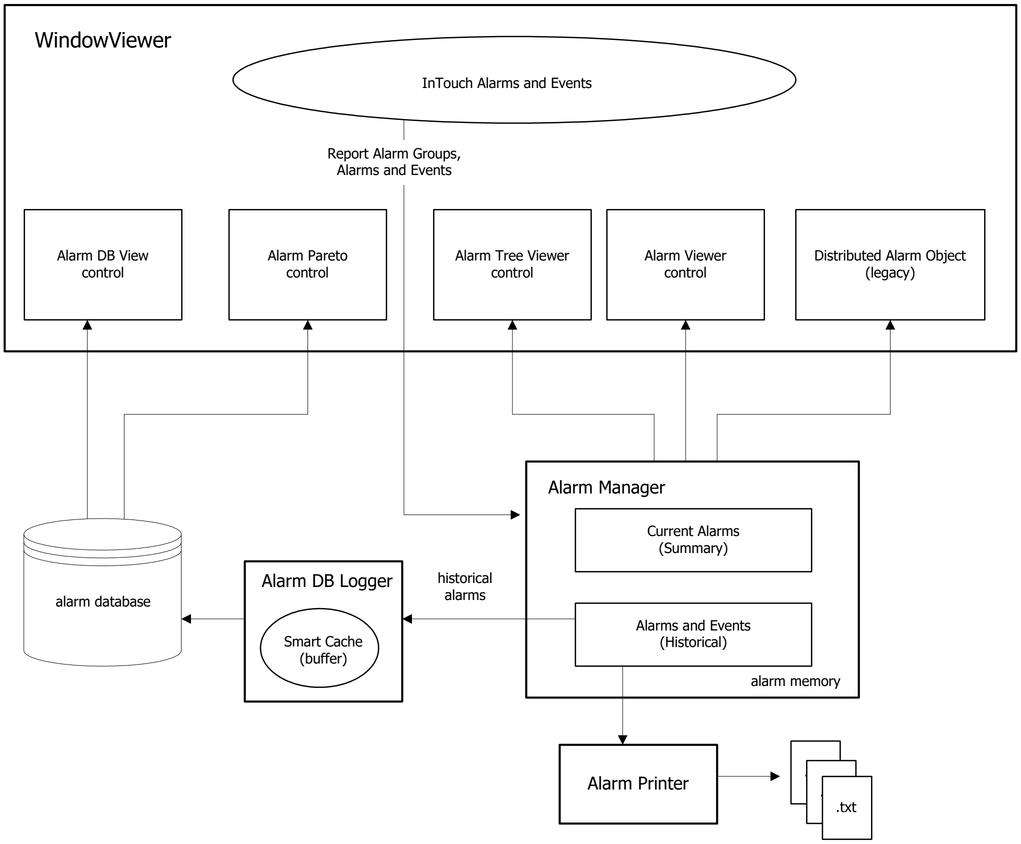
If the absolute difference in values between consecutive tag changes exceeds a specified limit, a rate of change alarm occurs. The rate of change limit is expressed as a percentage of the tag's value over a time interval, which can be per second, per minute, or per hour. You can configure the value and priority of the ROC limit, and whether or not the limit is to be used.

InTouch Distributed Alarm System

The Distributed Alarm system is made up of:

- An Alarm Manager, which manages currently active alarms (summary alarms) and historical alarms and events. The summary and historical alarms are held in the InTouch internal alarm memory.
- An Alarm DB Logger, which stores historical alarms and events to the alarm database. The alarm database is a SQL Server database.
- An Alarm Printer, which prints historical alarms and events.
- A set of ActiveX controls, which retrieve alarms and events from either the internal alarm memory or the alarm database at run time.

The following figure shows an overview of the system.



Important: The Distributed Alarm system runs as a set of Windows services. To reduce the security exposure of running the Distributed Alarm system with administrator privileges, the user account permissions have been set to non-interactive for these services.

Run time operators can use the Distributed Alarm system to:

- Show, log, and print alarms and events generated by a local InTouch application and by alarm systems of other networked applications.
- Acknowledge alarms locally or from a remote network node.
- Use the alarm ActiveX controls in your InTouch applications to show alarm displays that you pre-configure.
- Provide more feedback about the alarm using a separate alarm comment field.

As an application developer, you can:

- Control the alarms through dotfields.
- Configure your alarms so that they are enabled or disabled directly or indirectly under full control of the application. You can apply alarm suppression to single alarm classes, tags, or groups to prohibit the showing of alarm information on a specific view node. System-wide disablement can block alarm activity at the source.
- Configure alarm information to be logged to history. The Alarm DB Logger can run as a Windows service or be manually started on demand. Alarm logging uses UTC (GMT) time stamping and provides compatibility with DST and across time zones.

- Set up failover alarm providers. If a primary alarm provider fails, the Distributed Alarm system seamlessly acquires alarm information from the backup system. On reconnection of the primary node, the Distributed Alarm system ensures that alarm acknowledgements are re-synchronized prior to the returning primary system becoming live.

The Distributed Alarm system:

- Sends data through the SuiteLink protocol and uses a minimal amount of CPU and network resources.
- Time stamps the alarm at the time the alarm occurs, not when the consumer receives the alarm. The time stamp includes milliseconds.

Alarm Providers and Consumers

On any given node there can be a collection of Alarm Providers (Publishers) and Alarm Consumers (Subscribers). The InTouch Distributed Alarm system provides the communication link to pass alarm information between nodes and software components.

Alarm Provider

An alarm provider:

- Keeps track of alarmable items—that is, items that can transition into an alarmed condition—and provides the Distributed Alarm system with the list of these items, including information on any hierarchical grouping of the items.
- Notifies the Distributed Alarm system when the status of an alarm item changes. Status changes include whether the item is in or out of the alarmed state and whether the most recent alarm has been acknowledged.
- Keeps track of whether an alarm item is disabled.

The InTouch HMI supports external alarm providers, such as QI Analyst, an ArchestrA Galaxy, and other software built with the Alarm API toolkit. The date/time stamp for these alarm records is provided by the alarm provider, and is not generated by the Distributed Alarm system.

Alarm Consumer

An alarm consumer:

- Provides the Distributed Alarm system with a set of queries identifying alarmable items about which it wishes to receive notifications. A query remains active until changed or removed by the alarm consumer, and specifies an alarm provider or group of alarms - much like a SQL query with "wildcards." Whenever an alarm provider issues notification of a change, the Distributed Alarm system checks the alarm for matches with all registered queries and passes updates to the corresponding alarm consumers.
- Upon receiving updates, shows or logs information relating to the status of the items or their transitions.
- Acknowledges alarms. The alarm consumer sends an acknowledgement notification to the Distributed Alarm system, identifying the alarm and the alarm provider. The notification is passed to the alarm provider, which then updates the status of the item to acknowledged (if appropriate) and in turn notifies the Distributed Alarm system, thereby ensuring that the update gets distributed to all interested alarm consumers.

Note: The majority of communication in the Distributed Alarm system consists of sending alarm queries and alarm records from one node to another. Within a node, alarm queries and alarm records are tracked and buffered by the internal alarm memory to minimize network traffic.

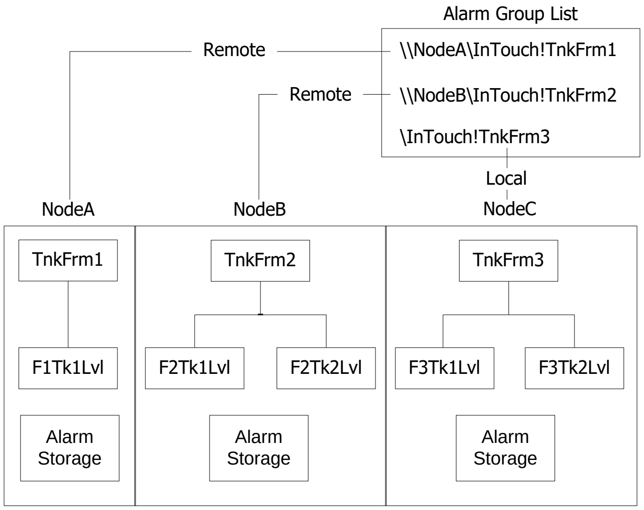
Distributed Alarm Group Lists

The Distributed Alarm system uses alarm groups to organize alarms into a local tree view. The distributed alarm display uses the tree view to filter alarms. You can view these alarm groups from multiple nodes on a network.

The Distributed Alarm system uses an alarm group list to combine alarm groups from local and remote nodes. An alarm group list is a named list consisting of InTouch nodes and the alarm groups defined on each of those nodes. It can also contain other alarm group list names and local alarm groups. An alarm consumer, such as the Alarm Viewer control, uses this list to query for alarms.

Under a query alias, the Alarm Viewer control can show the combined alarms from the groups that belong to the list. Alarms can be acknowledged on the local InTouch node or from a remote node on the network.

The following figure shows an alarm group list that combines alarm groups from three nodes. The alarm group list is defined locally on NodeC. The remaining alarm groups are from remote nodes.



The Distributed Alarm Display shows the alarms resulting from a query across all of the alarm groups that belong to the list. For example, if you were interested in showing all tank farm alarms across several InTouch nodes, you can create a list called TankFarmAlarms. To this list, you add alarm groups from all nodes that run tank farm InTouch applications.

For more information on creating alarm groups, see "Creating an Alarm Group" on page 23.

Summary Alarms versus Historical Alarms

Summary alarms are alarms that are currently active. Historical alarms are alarms that are not currently active and are typically stored to the alarm database.

For example, you might want to see a summary of all current alarms that are awaiting acknowledgment, whereas all other alarm information is of historical interest and of less urgency.

Alarm Disablement, Inhibition, and Suppression

You can turn alarms "off" or ignore them without actually removing the alarm configuration. You can either disable an alarm, inhibit it, or suppress it.

Alarm disablement and inhibition is controlled at the alarm provider. Suppression is controlled at the alarm consumer. For more information on providers and consumers, see *Alarm Providers and Consumers* on page 26.

- **Disablement**. You disable an alarm at the alarm provider by setting a flag that marks it as disabled. No matter what alarm conditions occur, the item is never put into an alarmed state. For information on dotfields you can use to disable an alarm, see *Enabling and Disabling Alarms for a Tag or Alarm Group* on page 118.

  You can disable or enable all of a tag's alarms at one time. Also, for an alarm that has sub-states, you can disable each sub-state individually.

- **Inhibition**. You inhibit an alarm by:

  a. Adding an "inhibitor" tag to the alarm configuration in WindowMaker. The inhibitor tag is used at run time to mark the alarm as inhibited.

  b. Setting the inhibitor tag to True or False at run time. When the inhibitor tag is False, the alarm is handled normally. When the inhibitor tag is True, the item cannot alarm.

  Each alarm sub-state can be inhibited by a different tag, and you can leave some sub-states with no inhibitor tag assigned.

  Assigning a tag as an inhibitor tag for an alarm increases its cross-reference use count.

- **Suppression**. Suppression causes an alarm consumer to ignore certain alarms. If an alarm matches the exclusion criteria, it is not visible. That is, it is not shown on a display, printed, or logged at that particular alarm consumer.

  The actual alarm generation is completely unaffected by suppression. Alarm records can still be logged into alarm history.

If an alarm becomes disabled or actively inhibited while the item is in an alarmed state, the item is forced to a different (valid) state. What that state should be depends upon which states are available and whether they have also been disabled. This activity is handled by the alarm provider according to the type of alarm, limit values, and so on.

An alarm that is disabled or actively inhibited is not waiting for an acknowledgment. If the alarm has sub-states, it can only be waiting for an acknowledgment on sub-states that are still available.

Terminal Services Alarm Support

By using the Distributed Alarm system with Terminal Services for InTouch, alarm clients running on different terminal sessions can select what alarm data to show and how to present it.

Alarm Providers identify themselves by a name that uniquely identifies their application, and the instance of their application. This information is made available to the Distributed Alarm system when the Alarm Provider or the Alarm Consumer registers with the Distributed Alarm system.

The node on which an Alarm Provider is running is identified by a name that uniquely identifies the computer node in the system. The alarm records that are generated by Terminal Services Edition (TSE) client sessions include an expanded node name in the format Node:IP Address; for example, serverAlarm:192.168.1.23. This information is made available to the Distributed Alarm system when an instance of it starts up on the computer node.

When an alarm event is logged, the node and complete Alarm Provider name identify the source of the alarm.

When an alarm is acknowledged in a Terminal Services environment, the Operator Node that gets recorded will be the name of the client machine that the respective operator established the Terminal Services session from. If the node name can't be retrieved, the node's IP address will be used instead.

A terminal server client session cannot be an InTouch alarm provider.

Distributed Alarm System Data Storage

There are several forms of data storage used in the Distributed Alarm system:

- **Internal alarm memory (buffer)**

  Most information about current and recent alarms is held in memory on various computer nodes. InTouch uses two memory locations: one for summary alarms (current) and one for historical alarms and events. This model is also used in the Distributed Alarm system.

  The memory for summary alarms grows as needed to accommodate all current alarms up to the limit of available memory. The memory for historical alarms can grow only to a pre-determined limit. After the historical memory reaches this limit, the oldest alarm records are discarded as new ones are added. In a multi-node environment, the alarm memory on the various nodes constitute a single collective of alarm memory.

  For information about setting the limit, see "Configuring the Alarm Buffer Size" on page 36.

- **Alarm database**

  The Alarm DB Logger creates a database, keeping track of when an alarm occurs, makes a sub-state transition, is acknowledged, and when it returns to normal. Essentially, these records constitute a history of alarms in the system.

Because it is based on the use of queries, the Distributed Alarm system supports using one computer node to log alarms for several other nodes.

Chapter 2

Configuring Alarms

About Configuring Alarms

To configure alarms, you simply configure tags with alarm conditions.

If required, you can also:

- Define alarm hierarchies.
- Disable and inhibit alarms.
- Configure alarm comments.
- Configure miscellaneous alarm and event properties.

Defining Alarm Hierarchies

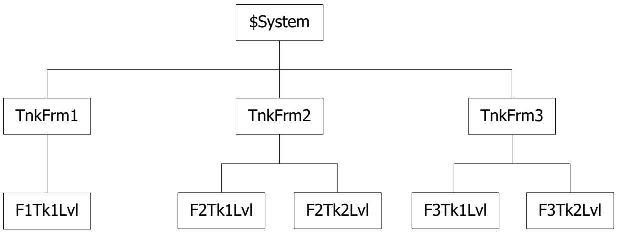
Each InTouch alarm belongs to an alarm group. Organizing related alarms into groups makes it easier for an operator to filter, show, and acknowledge alarms. For more information, see "Alarm Groups" on page 21.

The Distributed Alarm system uses alarm groups as the basis for its alarm group lists. For more information about creating Distributed Alarm system group lists, see *Creating an Alarm Group List File* on page 41.

Creating an Alarm Group

Before you start creating alarm groups, have a plan for how your alarm groups should be organized and what you want the alarm group names to be. Using a consistent group naming convention enforces a logical ordering of groups within the hierarchy.

In the following figure, notice the similarity of names assigned to groups at the same level within the hierarchy.



Also, notice that subordinate group names reference their parent groups by including a portion of the parent name. For example, the third-level alarm group name F1Tk1Lvl references its alarm group parent TnkFrm1 by including the F1 prefix in its group name. Develop a naming convention that suggests the parent-child relationship between alarm groups at different levels within the hierarchy.

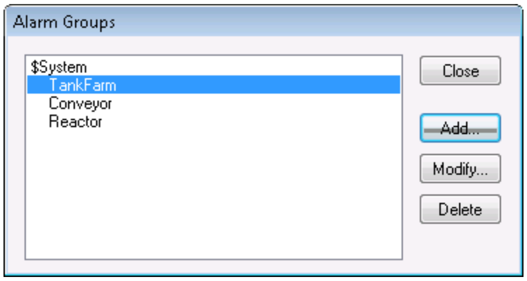
Note: While alarm groups do not count as tags for InTouch licensing, they do count as tags in the database. Therefore, the total number of alarm groups plus actual tags cannot exceed the maximum limit set by your InTouch license.

An alarm group name must meet the following requirements:

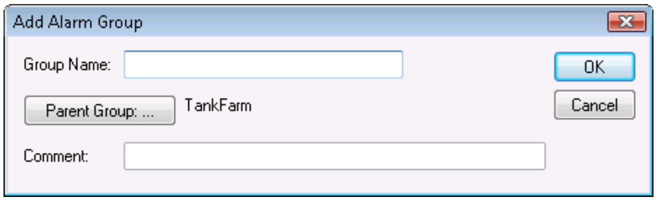
- A name must be 32 characters or fewer.
- A name must begin with an alphanumeric character (A-Z, a-z, or 0-9).
- A name can contain the following keyboard characters (@, #, $, %, &, -, _, ?, !, \) beginning at the second character position within the name.
- If a name contains a hyphen (-), the name must begin with an alphabetic character.
- A name cannot contain a blank space.
- A name must have at least one alphabetic character.

To create an alarm group

1. On the **Special** menu, click **Alarm Groups**. The **Alarm Groups** dialog box appears.



2. Click **Add**. The **Add Alarm Group** dialog box appears.



3. In the **Group Name** box, type a name for the new alarm group.
4. To reassign the alarm group to another parent group:
   a. Click **Parent Group** to show the **Alarm Groups** dialog box. If this is the first alarm group defined for the InTouch application, the group is automatically assigned to the parent $System group.
   b. Select a new parent group from the list and click **Close**.
5. In the **Comment** box, type an optional comment up to 49 characters for the new alarm group and click **OK**.

   The **Alarm Groups** dialog box appears and shows the new alarm group added to the list.

6. Click **Close**.

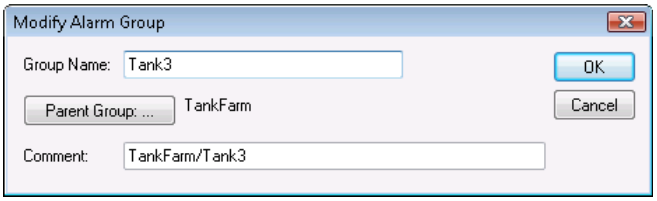
Modifying an Alarm Group

You can modify an alarm group to:

- Rename it.
- Change the associated comment.
- Reassign it to another group.

To modify an alarm group

1. On the **Special** menu, click **Alarm Groups**. The **Alarm Groups** dialog box appears.
2. Select the alarm group to modify and click **Modify**. The **Modify Alarm Group** dialog box appears.



Modify Alarm Group

Group Name: Tank3

Parent Group: ... TankFarm

Comment: TankFarm/Tank3

3. Make any changes to the alarm group's name or comment.
4. To reassign the alarm group to another parent group:
   a. Click **Parent Group** to show the **Alarm Groups** dialog box.
   b. Select a new parent group from the list and click **Close**.
5. Click **OK**.

Deleting an Alarm Group

You can delete an alarm group and remove the group from the hierarchy. Alarms and tags that belong to deleted alarm groups are automatically reassigned to the immediate parent group above the deleted group in the hierarchy. Also, child groups of the deleted group are reassigned to the immediate parent group above the deleted group.

To delete an alarm group

1. On the **Special** menu, click **Alarm Groups**. The **Alarm Groups** dialog box appears.
2. Select the alarm group and click **Delete**. When a message appears, click **Yes**.
3. Click **Close**.

Configuring Tags with Alarm Conditions

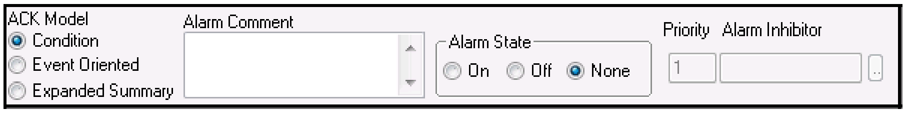
You can configure any tag for an alarm by specifying the type of alarm and one or more alarm thresholds. Whenever the value of a tag reaches a defined threshold, an alarm occurs. Any transitions of a tag's value in and out of an alarm state are reported to the Distributed Alarm system.

Configuring Discrete Alarms

A discrete alarm corresponds to a discrete tag. You can configure whether the alarmed state corresponds to the discrete tag's true (On, Yes, 1) state or false (Off, No, 0) state.

To define alarm conditions for a discrete tag

1. Open the Tagname Dictionary.
2. Select an existing discrete tag or create a new discrete tag.
3. Click either **Alarms** or **Details & Alarms** at the top of the **Tagname Dictionary** dialog box to show the discrete alarm details dialog box.



ACK Model
● Condition
○ Event Oriented
○ Expanded Summary

Alarm Comment

Alarm State
○ On ○ Off ● None

Priority: 1
Alarm Inhibitor

4. In the **ACK Model** area, select the alarm acknowledgement model for the tag.
   - Click **Condition** for acknowledgment to count against all transitions into the alarmed state or a sub-state up to the time of the acknowledgement. This is the default acknowledgement model.
   - Click **Event Oriented** for an acknowledgment to only be for a particular transition to the alarmed state or a sub-state; an acknowledgment is accepted only if it refers to the most recent transaction.
   - Click **Expanded Summary** for an acknowledgment to only be for a particular transition, whether to an alarmed state, to a sub-state, or a return to normal. Each transition from the normal state marks the beginning of a new "return to normal" (RTN) group. All transitions in an RTN group must be acknowledged individually before the overall RTN group is considered acknowledged.
5. In the **Alarm Comment** box, type an alarm comment up to 131 characters.

Note: The Alarm Comment box should not contain the double-quote character ("). A process that uses the double-quote as a delimiter will fail if it is fetching an alarm comment that includes a double-quote.

6. In the **Alarm State** area, select the active alarm state to be the discrete tag's **On** or **Off** value.
7. In the **Priority** box, assign an alarm priority number between 1 to 999. The default priority number is 1, which is the highest alarm priority.
8. Optionally assign an alarm inhibitor tag for the discrete alarm.
   a. In the **Alarm Inhibitor** box, click the button to show the **Select Tag** dialog box containing a list of defined tags.
   b. Select a tag from the list and click **OK**. The name of the tag you selected as the inhibitor tag appears in the **Alarm Inhibitor** box.

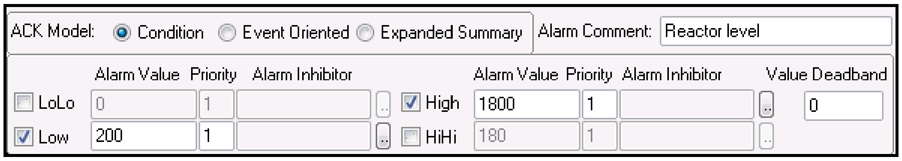
   For more information on inhibiting alarms, see *Inhibiting Alarms* on page 37.
9. Click **Save**.
10. Click **Close** to close the **Tagname Dictionary** dialog box.

Configuring Value Alarms

A value alarm is associated with integer or real tags. You can set alarms when the tag value transitions from a set of predetermined thresholds that range from LoLo to HiHi. You can configure whether the alarmed state corresponds to any value of the tag and the associated priority of that alarm.

To configure a value alarm

1. Open the Tagname Dictionary.
2. Select an existing real or integer tag or create a new tag.
3. Click either **Alarms** or **Details & Alarms** at the top of the **Tagname Dictionary** dialog box to show the alarm details dialog box.



ACK Model: ● Condition ○ Event Oriented ○ Expanded Summary   Alarm Comment: Reactor level

	Alarm Value	Priority	Alarm Inhibitor		Alarm Value	Priority	Alarm Inhibitor	Value Deadband
□ LoLo	0	1		☑ High	1800	1		0
☑ Low	200	1		□ HiHi	180	1		

4. In the **ACK Model** area, select the alarm acknowledgement model for the tag.
   - Click **Condition** for acknowledgment to count against all transitions into the alarmed state or a sub-state up to the time of the acknowledgement. This is the default acknowledgement model.
   - Click **Event Oriented** for an acknowledgment to only be for a particular transition to the alarmed state or a sub-state. An acknowledgment is accepted only if it refers to the most recent transaction.
   - Click **Expanded Summary** for acknowledgment to only be for a particular transition, whether to an alarmed state, to a sub-state, or a return to normal. Each transition from the normal state marks the beginning of a new "return to normal" (RTN) group. All transitions in an RTN group must be acknowledged individually before the overall RTN group is considered acknowledged.
5. In the **Alarm Comment** box, type a default comment up to 131 characters. The comment is assigned to the tag's .AlarmComment dotfield.

Note: The Alarm Comment box should not contain the double-quote character ("). A process that uses the double-quote as a delimiter will fail if it is fetching an alarm comment that includes a double-quote.

6. Select the alarm types (**LoLo**, **Low**, **High**, **HiHi**) to detect when the value of the tag is beyond an absolute limit.
7. In the **Alarm Value** boxes, type the limit values for the alarm types.

   For example, in the case of **LoLo** and **Low** alarms, an alarm condition exists whenever the value of the tag is less than the **Alarm Value**. In the case of **High** and **HiHi** alarms, an alarm occurs whenever the value of the tag exceeds the **Alarm Value**. You can use real numbers for the limits.
8. In the **Value Deadband** box, type the number of engineering units the tag value must drop below or above the alarm value before it transitions out of an alarm state.

   For example, to return-to-normal from an alarm condition, a tag value must not only return inside its alarm limit, but also return through your specified Value Deadband. The Value Deadband prevents nuisance alarms caused by repetitive re-annunciation of an alarm where the tag value hovers around the limit, continually fluctuating in and out of an alarm state.
9. Optionally assign an alarm inhibitor tag for the tag's alarm types (LoLo, Low, High, HiHi).

a. In the **Alarm Inhibitor** area, click the button to show the **Select Tag** dialog box containing a list of defined tags.

b. Select a tag from the list and click **OK**. The name of the tag you selected as the inhibitor tag appears in the **Alarm Inhibitor** box.

For more information on inhibitor tags, see *Inhibiting Alarms* on page 37.

10. Click **Save**.
11. Click **Close** to exit the **Tagname Dictionary** dialog box.

Configuring Deviation Alarms

A deviation alarm is associated with integer or real tags. You can set an alarm by comparing the current tag value to a target value, and then the absolute value of the difference is compared to one or more limits, expressed as a percentage of the range of the tag value.

For example, the following values set the conditions for a tag's minor and major deviation alarms:

Minimum Value = -1000

Maximum Value = 1000

Minor Deviation % = 10

Major Deviation % = 15

Target Value = 500

Using these values as an example, the minor and major deviation alarms points are calculated by the following steps:

1. Calculate the total value range of the tag.

   1000 - (-1000) = 2000

2. Multiply the total value range of the tag by minor and major deviation percentages.

   2000 x 0.10 = 200 = minor deviation limit

   2000 x 0.15 = 300 = major deviation limit

3. Add and subtract the minor and major deviation limits from the target value.

   500 - 200 = 300 = minor deviation lower limit

   500 + 200 = 700 = minor deviation upper limit

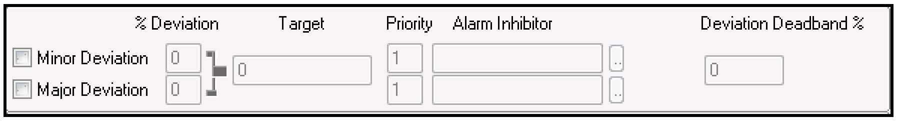
   500 - 300 = 200 = Major deviation lower limit

   500 + 300 = 800 = Major deviation upper limit

To configure a deviation alarm

1. Open the Tagname Dictionary.
2. Select an existing real or integer tag or create a new tag.

3. Click either **Alarms** or **Details & Alarms** at the top of the **Tagname Dictionary** dialog box to show the alarm details dialog box.



	% Deviation	Target	Priority	Alarm Inhibitor	Deviation Deadband %
□ Minor Deviation	0	0	1		0
□ Major Deviation	0		1		

4. Select the deviation (**Minor** and **Major Deviation**) alarm types you want to use to detect when the value of an analog type tag is in a major or minor deviation from the specified target value.
5. In the **%Deviation** box, type the percentage that the analog tag can deviate from the target value to trigger a minor or major deviation alarm condition. It is expressed as a percentage of the range of the tag. For an I/O tag, the **Min EU** and **Max EU** values entered in the tag's details dialog box define the range. For memory tags, the range is defined by the minimum value and maximum value.
6. In the **Target** box, type the tag reference value that minor and major deviation percentages are based.
7. In the **Deviation Deadband %** box, type the deviation percentage the tag value must drop below the limit before the tag is taken out of its alarm condition.
8. Click **Save**.
9. Click **Close** to close the **Tagname Dictionary** dialog box.

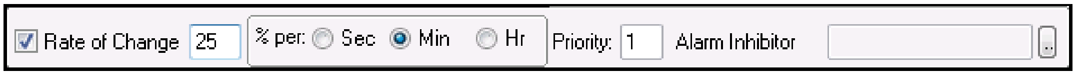
Configuring Rate of Change Alarms

A rate of change alarm detects when the absolute value of an alarm exceeds a specified limit over a measured interval. A tag is tested for a rate-of-change alarm whenever its value changes. The change rate is calculated using the previous tag value, the time of the previous change, the current tag value, and the current time.

The calculated rate of change over time is compared to a rate-of-change percentage limit specified for a tag. If the calculated rate-of-change is greater than the percentage limit, an alarm condition is set for the tag. A rate-of-change alarm remains active until the rate at which the tag is changing is less than the alarm limit.

To configure a rate of change alarm

1. Open the Tagname Dictionary.
2. Select an existing real or integer tag or create a new tag.
3. Click either **Alarms** or **Details & Alarms** at the top of the **Tagname Dictionary** dialog box to show the alarm details dialog box. The following figure shows only those options that apply to rate-of-change alarms.



☑ Rate of Change 25 % per: ○ Sec ● Min ○ Hr Priority: 1 Alarm Inhibitor

4. Select the **Rate of Change** box.
5. In the **% per** box, enter the maximum allowable percentage change limit.
6. Select **Sec**, **Min,** or **Hr** as the time interval unit.
7. In the **Priority** box, type a number between 1 and 999 to set the alarm priority.
8. Optionally assign an alarm inhibitor tag for the rate of change alarm.
    a. In the **Alarm Inhibitor** area, click the button to show the **Select Tag** dialog box containing a list of defined tags.

b. Select a tag from the list and click **OK**. The name of the tag you selected as the inhibitor tag appears in the **Alarm Inhibitor** box.

For more information on inhibiting alarms, see *Inhibiting Alarms* on page 37.

9. Click **Save**.
10. Click **Close** to close the **Tagname Dictionary** dialog box.

Disabling Alarms

You can disable or enable all alarms of a tag at once using the .AlarmEnabled or AlarmDisabled dotfields. For an alarm that has sub-states, each sub-state can be individually disabled. For example, an analog value alarm can have Hi enabled and HiHi disabled.

During run time, the Alarm Provider does not generate alarms for an alarm or sub-state that is disabled. Changes to whether an alarm is disabled or enabled can be made at run time.

Whenever an alarm transitions from disabled to enabled, the checking logic determines whether the item should be put in the alarmed state by the Alarm Provider.

If an alarm becomes disabled or actively inhibited while the item is in an alarmed state, the item will be forced to a different (valid) state. What that state should be depends upon which states are available and whether they have also been disabled. This activity is handled by the Alarm Provider according to the type of alarm and limit values.

Inhibiting Alarms

You can optionally assign to each alarm or alarm sub-state an inhibitor alarm tag that prevents the alarm from transitioning into an active state.

- When the inhibitor tag value becomes and remains TRUE (non-zero or non-NULL), the alarm is inhibited.
- Likewise, when the inhibitor alarm tag becomes and remains FALSE (zero or NULL), the alarm is not inhibited.

You can only change the inhibitor tag in WindowMaker. You can change the value of an inhibitor tag at run time.

You can assign inhibitor tags to individual alarm sub-states. Each sub-state can be inhibited by a different tag, and you can leave some sub-states with no inhibitor tag assigned.

An alarm that is inhibited (and for which the tag is TRUE) is not waiting for an acknowledgment. If the alarm has sub-states, it can only be waiting for an acknowledgment on sub-states that are still available.

An alarm or sub-state can be independently disabled, inhibited, or both. Only if the alarm is both enabled and not actively inhibited is the alarm capable of becoming active.

If an alarm or sub-state has no inhibitor tag assigned to it, the effect is the same as if it had an inhibitor tag that is always FALSE.

Whenever the transition causes an alarm to change from being actively inhibited, the checking logic determines whether InTouch should put the item in the alarmed state.

If an alarm becomes actively inhibited while the item is in an alarmed state, the item must be forced to a different (valid) state. What that state should be depends upon which states are available and whether they have also been disabled or actively inhibited. This activity is handled by InTouch according to the type of alarm, limit values, and so on.

If an alarm (or an alarm sub-state) becomes actively inhibited while waiting for an acknowledgment, the item must be forced to a different (valid) state. As with whether the item is alarmed, InTouch must determine what this state should be.

Alarm inhibitor tags are included in use counts and license limitations.

Use the following read-only tag dotfields to get the name of the alarm inhibitor tag:

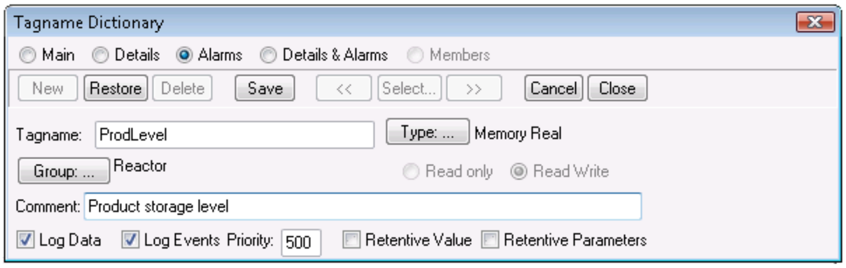
- AlarmDscInhibitor
- AlarmLoLoInhibitor
- AlarmLoInhibitor
- AlarmHiHiInhibitor
- AlarmHiInhibitor
- AlarmMajDevInhibitor
- AlarmMinDevInhibitor
- AlarmRocInhibitor

These fields return the name of a tag. Therefore, you can use the name in an indirect tag reference in an InTouch QuickScript to find out the current value of the alarm inhibitor tag, or to change the value of the alarm inhibitor tag. By doing this, you can force groups of alarms to be enabled or actively inhibited during run time.

Setting Event Properties for Individual Tags

When you define a tag to do event monitoring, an event message is logged to the alarm system each time the tag's value changes. The event message logs how the value changed. For example, whether the operator, I/O, QuickScripts, or the system initiated the change.

1. Open the Tagname Dictionary.
2. Select an existing tag or create a new tag associated with data that will be recorded as an event.
3. Select Log Events. The Priority box becomes available. The value you enter for the Priority determines the event priority level for the tag.



○ Main ○ Details ● Alarms ○ Details & Alarms ○ Members

Tagname: ProdLevel

Type: Memory Real

Group: Reactor

○ Read only ● Read Write

Comment: Product storage level

☑ Log Data ☑ Log Events Priority: 500 □ Retentive Value □ Retentive Parameters

4. In the **Priority** box, assign a number from 1 to 999 as the event priority. 1 is the highest event priority and 999 the lowest.

5. Click **Save**.
6. Click **Close** to close the **Tagname Dictionary** dialog box.

Configuring Global Settings for Alarms and Events

You can configure the following global settings that apply to all alarms and events generated by an application:

- Internal alarm memory (buffer) size.
- Whether an alarm's return to normal implies acknowledgement. For more information, see *Using Automatic Acknowledgement When the Tag Value Returns to Normal* on page 95.
- Event logging.
- Whether alarm enabling is retentive when WindowViewer is restarted.
- Whether to use alarm acknowledgement comments as the general alarm comment. For more information, see *Using Alarm and Acknowledgement Comments* on page 97.

Configuring the Alarm Buffer Size

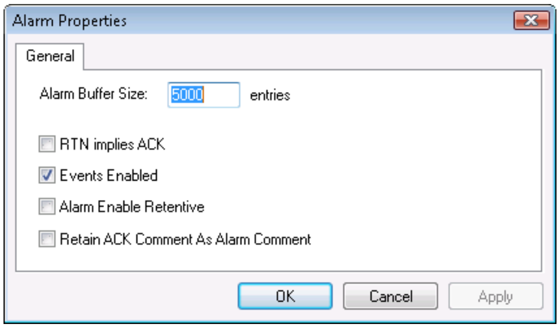
Communication in the Distributed Alarm system consists largely of alarm queries and alarm records sent between nodes. Within a node, alarm queries and records are held in the InTouch internal alarm memory, also called the alarm buffer, to minimize network traffic. The alarm buffer size is maximum number of alarms the node can store for summary or historical alarm queries. The alarm buffer deletes the oldest records to make room for new records.

Only alarm events stored in memory can be shown in an application window. If your InTouch application does not show any alarm status, you can set the buffer size to 1 to conserve node memory.

Assigning a large value to the alarm buffer can potentially affect node performance. For a Distributed Alarm system, we recommend the default value of 500.

To configure the alarm buffer size

1. Open the InTouch application in WindowMaker.
2. On the **Special** menu, point to **Configure, and then click Alarms**. The **Alarm Properties** dialog box appears.



Alarm Properties

General

Alarm Buffer Size: 5000 entries

☐ RTN implies ACK
☑ Events Enabled
☐ Alarm Enable Retentive
☐ Retain ACK Comment As Alarm Comment

3. In the **Alarm Buffer Size** box, type the maximum number of alarm entries that can be stored in the memory alarm buffer for summary or historical queries.
4. Click **OK**.

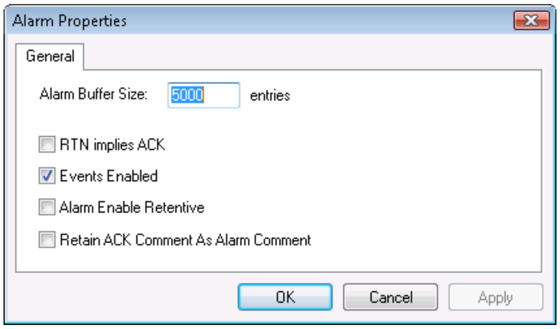
Enabling Events

You can enable events to be logged within the application. An event represents a recognized change in application data resulting from an operator action, QuickScript, or I/O.

A tag's **Log Events** property must be set from the Tagname Dictionary before the tag's associated events are stored in the internal alarm memory or logged to the alarm database. For more information about specifying event logging for a tag, see *Setting Event Properties for Individual Tags* on page 38.

To enable events

1. Open the InTouch application in WindowMaker.
2. On the **Special** menu, point to **Configure, and then click Alarms**. The **Alarm Properties** dialog box appears.



Alarm Properties

General

Alarm Buffer Size: 5000 entries

□ RTN implies ACK
☑ Events Enabled
□ Alarm Enable Retentive
□ Retain ACK Comment As Alarm Comment

3. Select the **Events Enabled** check box to log all events that occur while an InTouch application is running.
4. Click **OK**.

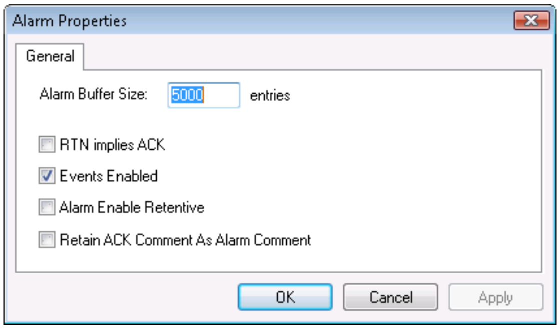
Making Alarm Enabling Retentive

You can select to retain the current value assigned to a tag's .**AlarmEnabled** dotfield when the InTouch application is stopped and then restarted.

The value assigned to the .**AlarmEnabled** dotfield toggles alarm and event logging on or off. The .**AlarmEnabled** dotfield can be assigned to tags or alarm groups. When the .**AlarmEnabled** dotfield is assigned to an alarm group, it determines whether all alarms associated with the tags within the specified alarm group are logged or not.

To make alarm enabling retentive

1. Open the InTouch application in WindowMaker.
2. On the **Special** menu, point to **Configure, and then click Alarms**. The **Alarm Properties** dialog box appears.



Alarm Properties

General

Alarm Buffer Size: 5000 entries

□ RTN implies ACK
☑ Events Enabled
□ Alarm Enable Retentive
□ Retain ACK Comment As Alarm Comment

3. Select the **Alarm Enable Retentive** check box to retain the current state of the **.AlarmEnabled** dotfield as the initial value when the InTouch application re-started.
4. Click **OK**.

Creating an Alarm Group List File

You use the Distributed Name Manager to create an alarm group list. Then, you add existing alarm groups from the local and remote nodes to the list.

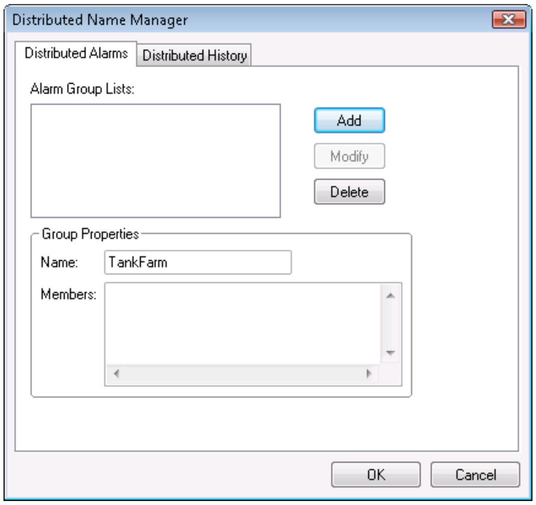
The following table shows the syntax to specify alarm groups from the Distributed Name Manager.

Node	Alarm Group Syntax
Local	\InTouch!Group_Name or .Group_Name
Remote	\\Node_Name\InTouch!Group_Name or Node_Name.Group_Name

For these examples, Node_Name is the name of the InTouch remote node. Group_Name is the name of the alarm group. If the alarm group is defined on the local node where the alarm group list is being defined, you can simply enter the alarm group name with a preceding period. For example, .Group_Name.

To create an alarm group list

1. On the **Special** menu, point to **Configure**, and then click **Distributed Name Manager. The Distributed Name Manager dialog box appears.**



Name: TankFarm

Members:

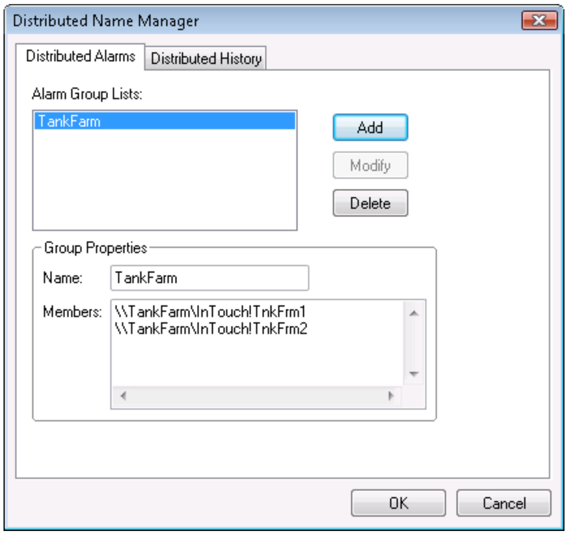
2. In the **Group Properties** area, type the name of the alarm query in the **Name** box.
3. In the **Members** box, type the list of InTouch nodes and alarm groups to be included in the query.

You can enter the node names and alarm group names using Standard Group Entry syntax or as short cut entries using periods. Short cut entries are converted to Standard Group Entries when you save the alarm group list.

Note: The Node.Group and .Group syntax can be used only in this configuration dialog box. It is not valid in the alarm display configuration or any alarm QuickScript function.

4. Click **Add** to add the list to your alarm group file.

   The syntax of the members is automatically converted.



Alarm Group Lists: TankFarm

Name: TankFarm

Members: \\TankFarm\InTouch!TnkFrm1
\\TankFarm\InTouch!TnkFrm2

5. Click **OK**.

6. Add the name of the alarm group list to a query in an Alarm Viewer control. The Alarm Viewer control now shows alarms for all groups specified in the list.

Chapter 3

Alarm Queries

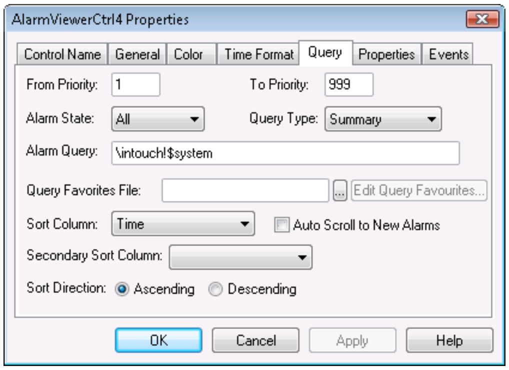
About Alarm Queries

An alarm query retrieves either:

- Alarms and events (historical alarms) from the InTouch internal alarm memory or the alarm database.
- Current alarms (summary alarms) from the InTouch internal alarm memory.

When you configure an InTouch alarm ActiveX control, you specify the query source. You can also select query options to filter the query results.

The following figure shows the **Query** tab for the Alarm Viewer ActiveX control.



AlarmViewerCtrl4 Properties

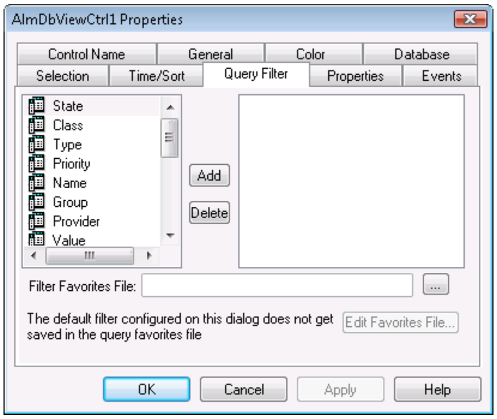
From Priority: 1
To Priority: 999
Alarm State: All
Query Type: Summary
Alarm Query: \intouch!$system
Query Favorites File:
Sort Column: Time
☐ Auto Scroll to New Alarms
Secondary Sort Column:
Sort Direction: ● Ascending ○ Descending

In this example, you create an alarm display that shows alarm data selected by the following criteria:

- Alarm priority (1-999)
- Alarm state (All, Acknowledged, or Unacknowledged)
- Query type (Summary or Historical)
- Alarm group (Local or remote data sources)

You can save your queries to an .xml file, called a "query favorites" file. During run time, you can update the alarm display with new alarm data by running another query using selection criteria saved to the file.

Other InTouch alarm ActiveX controls provide more extensive query criteria. The following figure shows the **Query Filter** tab of the Alarm DB Viewer control.



The default filter configured on this dialog does not get saved in the query favorites file

You build your queries by selecting alarm or event attributes from the list shown in the left pane of the dialog box. Then, you assign a value to the selected attributes. Finally, you can combine attributes using Boolean operators to set your query filter conditions.

You can write QuickScripts that include query functions or dotfields to select alarm and event records from alarm memory. The following Alarm Viewer control statement uses the ApplyQuery() method to query the alarm memory.

```
#AlarmViewerCtrl1.ApplyQuery ("\InTouch!$System",500,600,"All", "Historical");
```

This statement retrieves all historical alarms specified by the "\InTouch!$System" query with a priority between 500 and 600. The selected alarm records appear in the Alarm Viewer control display.

Example Alarm Queries

Alarm queries follow this syntax for the local node:

\Provider!AlarmGroup

For example:

\InTouch!$System

Use the following query syntax for remote nodes:

\\NodeName\Provider!AlarmGroup

For example, on a node called MyNode1:

\\MyNode1\InTouch!$System

Use the following syntax for querying alarms from a Galaxy with the **Register using "Galaxy_<Galaxy name>" instead of "Galaxy"** check box selected. This syntax gets alarms from a specific alarm name of an object in a specific area on a specific computer. The alarm name may be an attribute name or an alarm primitive name. Galaxy names are displayed in the alarm window's Provider column.

\\NodeName\Galaxy_GalaxyName!AreaName!ObjectName.AlarmName

The following syntax gets all alarms from a specific area:

\Galaxy_GalaxyName!AreaName

The following syntax gets alarms from two areas:

\Galaxy_GalaxyName!Area1 \Galaxy_GalaxyName!Area2

The following syntax gets all alarms in the specified Area from the Platform on the specified computer node (by default):

\\NodeName\Galaxy_GalaxyName!AreaName

You can also use single wildcard to match alarm names within a specified area. The following syntax gets all alarms from all objects starting with the characters "Tank" in the "AreaName" area:

\Galaxy_GalaxyName!AreaName!Tank*

The following syntax gets all alarms named "Hi" from all objects in the "AreaName" area:

\Galaxy_GalaxyName!AreaName!*.Hi

Getting More InTouch Query Information

The following table lists the references for more information about queries for each InTouch query source.

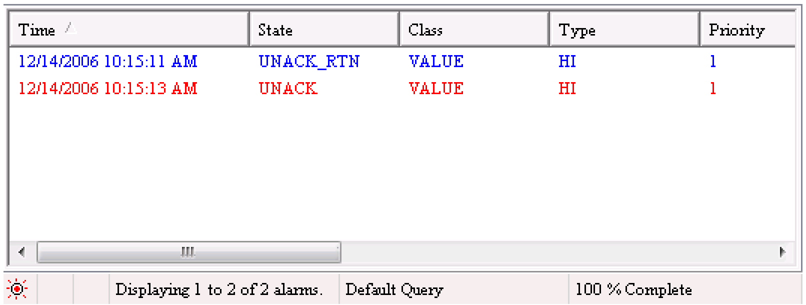
Query Source	**See**
Alarm DB Logger Manager	*Configuring Which Alarms to Log* on page 209
Alarm Printer Utility	*Configuring Which Alarms to Print* on page 180
Alarm Viewer Control	*Configuring Which Alarms to Show* on page 332
Alarm Tree Viewer Control	*Configuring Which Providers and Groups to Show* on page 162
Alarm Pareto Control	*Configuring Which Alarms to Analyze* on page 278
Distributed Alarm Display Object	*Configuring Which Alarms to Show* on page 332
Hot Backup Manager	*Creating an Alarm Record Mapping File* on page 315

Chapter 4

Viewing Current Alarms

About Viewing Current Alarms

Use the InTouch Alarm Viewer ActiveX control to view alarms. The Alarm Viewer control has scroll bars, sizable columns, multiple alarm selections, an update status bar, dynamic display types, and show colors based on the type of alarm.



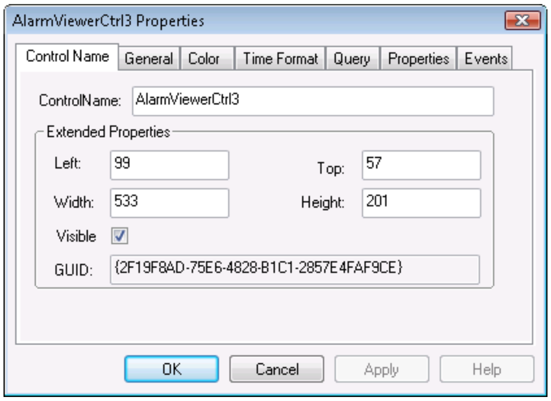
Time	State	Class	Type	Priority
12/14/2006 10:15:11 AM	UNACK_RTN	VALUE	HI	1
12/14/2006 10:15:13 AM	UNACK	VALUE	HI	1

Displaying 1 to 2 of 2 alarms. Default Query 100 % Complete

We recommend that you use the Alarm Viewer control to view InTouch alarms. However, you can continue to use the Distributed Alarm object to view alarms from applications created with versions of InTouch earlier than 7.1.

Configuring an Alarm Viewer Control

You can set Alarm Viewer control options from WindowMaker and options that users can modify while the Alarm Viewer control is running. You set these option in the **AlarmViewerCtrl Properties** dialog box.



AlarmViewerCtrl3 Properties

ControlName: AlarmViewerCtrl3

Extended Properties

Left: 99

Top: 57

Width: 533

Height: 201

Visible ☑

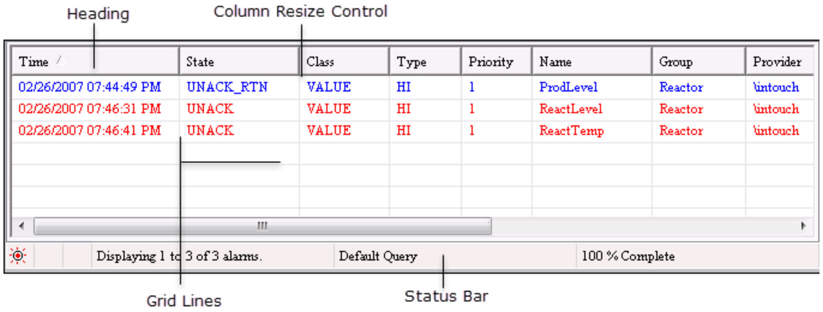
GUID: {2F19F8AD-75E6-4828-B1C1-2857E4FAF9CE}

Configuring the Appearance of the Grid

When you configure the visual appearance of the Alarm Viewer control, you can:

- Include a status bar.
- Include a column header.
- Include horizontal and vertical grid lines that show the rows and columns.
- Include a run-time option that enables the user to adjust the width of columns.
- Set the colors of visual elements.

The following figure shows how the Alarm Viewer control appears when all visual properties are active.

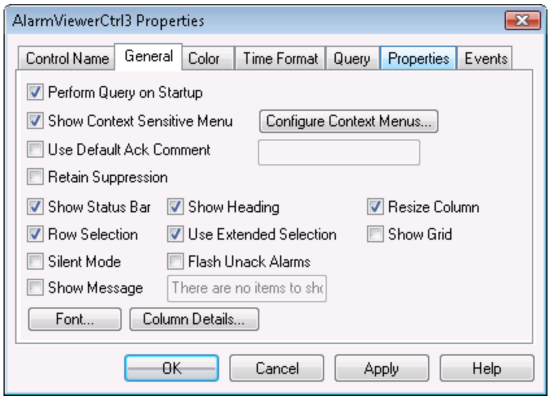


Time	State	Class	Type	Priority	Name	Group	Provider
02/26/2007 07:44:49 PM	UNACK_RTN	VALUE	HI	1	ProdLevel	Reactor	\intouch
02/26/2007 07:46:31 PM	UNACK	VALUE	HI	1	ReactLevel	Reactor	\intouch
02/26/2007 07:46:41 PM	UNACK	VALUE	HI	1	ReactTemp	Reactor	\intouch

Displaying 1 to 3 of 3 alarms. Default Query 100 % Complete

To configure the visual appearance

1. Right-click the Alarm Viewer control, and then click **Properties**. The AlarmViewerCtrl Properties dialog box appears.
2. Click the General tab.



☑ Perform Query on Startup
☑ Show Context Sensitive Menu
☐ Use Default Ack Comment
☐ Retain Suppression
☑ Show Status Bar ☑ Show Heading ☑ Resize Column
☑ Row Selection ☑ Use Extended Selection ☐ Show Grid
☐ Silent Mode ☐ Flash Unack Alarms
☐ Show Message There are no items to shc

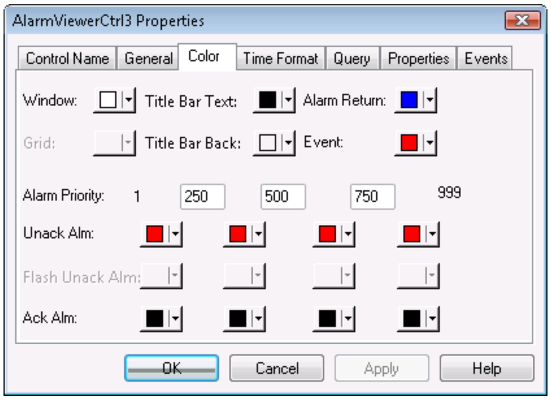
3. Set the visual appearance. Configure any of the following.

Option	Description
Perform Query on Startup	Automatically begins updating the control using default query properties. If a query is not run when the application starts, you need to run a script using the Requery() function to update the grid. The Requery option is also available on the grid's shortcut menu during run time.

Option	Description
Show Context Sensitive Menu	Enables a right-click shortcut menu during run time.
Use Default Ack Comment	Controls whether a default comment appears when an operator acknowledges an alarm. If this box is checked and a string is entered, the string is used during run time as the default comment. If this box is not selected, when the operator acknowledges an alarm, a dialog box appears to enter an optional comment. The dialog box can be filled in or left blank.
Retain Suppression	Retain alarm suppression between alarm queries when the alarm query is changed
Show Status Bar	Toggles whether the status bar appears at the bottom of the Alarm Viewer control.
Row Selection	Enables users to select individual rows during run time. Each row represents an alarm record. Users can select multiple alarms.
Silent Mode	If Silent Mode is selected, the Alarm Viewer control does not show error messages during run time. If it is not selected, the alarm display shows pop up error messages. In either case, error messages are always sent to the ArchestrA Log Viewer.
Show Message	Shows the message typed in the text box. This is the message shown when there are no alarms.
Show Heading	Toggles whether the heading bar appears at the top of the Alarm Viewer control.
Use Extended Selection	Enables the user to select multiple alarms simultaneously by holding down **CTRL** or **SHIFT** keys in conjunction with the mouse button. Available only if Row Selection check box is selected.
Flash Unack Alarms	Enables unacknowledged alarms to flash once per second until they are acknowledged. Freezing the alarm display in WindowViewer does not stop unacknowledged alarms from flashing.
Resize Columns	If Resize Columns is selected, the user can resize the width of the columns during run time. Otherwise, column width is static and can be set only from WindowMaker.
Show Grid	If Show Grid is selected, the Alarm Viewer control shows horizontal and vertical lines that separate the rows and columns of the alarm display. If it is not selected, no grid is visible.

4. Click Apply.

5. Click the **Color** tab.



Window: □ Title Bar Text: ⬛ Alarm Return: 🟦

Grid: Title Bar Back: □ Event: 🟥

Alarm Priority:	1	250	500	750	999
Unack Alm:	🟥	🟥	🟥	🟥	
Flash Unack Alm:					
Ack Alm:	⬛	⬛	⬛	⬛	

6. Click the palette button to assign colors to the visual elements of the Alarm Viewer control.

7. Click **Apply** to save your color selections.

8. Click OK.

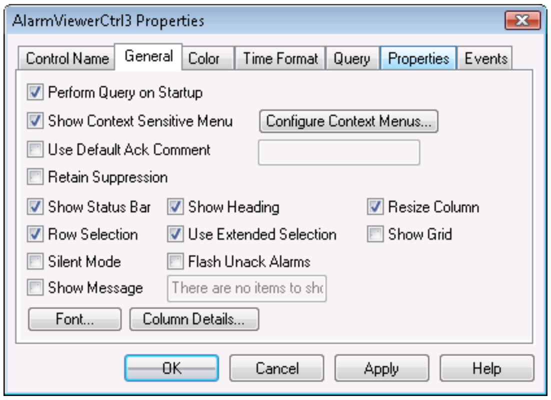
Configuring the Font Display

You can configure how the text appears for the Alarm Viewer control.

To configure the font properties

1. Right-click the Alarm Viewer control, and then click **Properties**. The **AlarmViewerCtrl Properties** dialog box appears.

2. Click the **General** tab.



☑ Perform Query on Startup
☑ Show Context Sensitive Menu
☐ Use Default Ack Comment
☐ Retain Suppression
☑ Show Status Bar ☑ Show Heading ☑ Resize Column
☑ Row Selection ☑ Use Extended Selection ☐ Show Grid
☐ Silent Mode ☐ Flash Unack Alarms
☐ Show Message There are no items to sho

3. Click **Font**. The standard Windows **Font** dialog box appears. Configure the font and then click **OK**.

4. Click **OK**.

Configuring Display Column Details

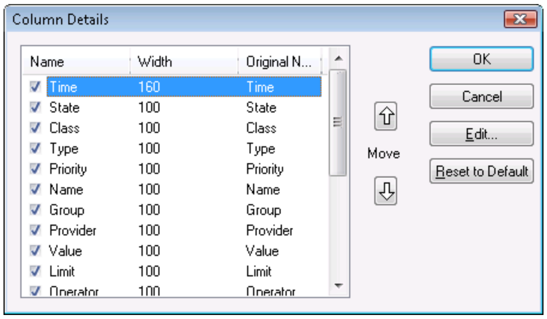
For the Alarm Viewer control, you can:

- Select and order the columns.
- Set the width of a column in pixels.

- Rename a column.

To configure the display column details

1. Right-click the Alarm Viewer control and then click Properties. The AlarmViewerCtrl Properties dialog box appears.
2. Click the General tab.
3. Click Column Details. The Column Details dialog box appears.



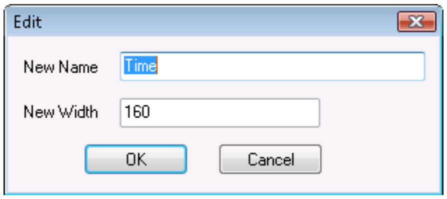
Name	Width	Original N...
☑ Time	160	Time
☑ State	100	State
☑ Class	100	Class
☑ Type	100	Type
☑ Priority	100	Priority
☑ Name	100	Name
☑ Group	100	Group
☑ Provider	100	Provider
☑ Value	100	Value
☑ Limit	100	Limit
☑ Operator	100	Operator

4. In the Name column, select the check boxes next to the names of the columns that you want to appear. You must select at least one column from the list.

Column	Shows
Time	The time as specified in the Time Format tab.
State	The state of the alarm.
Class	The alarm category.
Type	The alarm type.
Priority	The alarm priority.
Name	The tagname.
Group	The alarm group name.
Provider	The name of the alarm provider.
Value	The value of the tag when the alarm occurred. The width of the column should be large enough to provide the desired level of precision.
Limit	The alarm limit value of the tag. The width of the column should be large enough to provide the desired level of precision.
Operator	The logged-on operator’s ID associated with the alarm condition.
Operator Full Name	The logged-on operator’s full name.

Operator Node	The logged on operator’s node associated with the alarm condition. In a Terminal Services environment, this is the name of the client computer that the operator established the Terminal Services session from. If the node name can't be retrieved, the node's IP address is used instead.
Operator Domain	The logged on operator’s domain associated with the alarm condition.
Tag Comment	The comment for the tag.
Alarm Comment	The comment associated with the tag's alarm. This comment was typed in the Alarm Comment box when the tag’s alarm was defined. When an acknowledgement comment is introduced for alarms, the new comment is updated in this comment column.
User 1	The numerical value of the AlarmUserDefNum1 property of the alarm.
User 2	The numerical value of the AlarmUserDefNum2 property of the alarm.
User 3	The string value of the AlarmUserDefStr property of the alarm.

5. Rearrange columns by selecting the column name and using the up and down arrows. The column name appearing at the top of the Column Details dialog box is the left-most column of the alarm control.
6. To change the name of a column or its width, select the column and click Edit. The Edit dialog box appears.



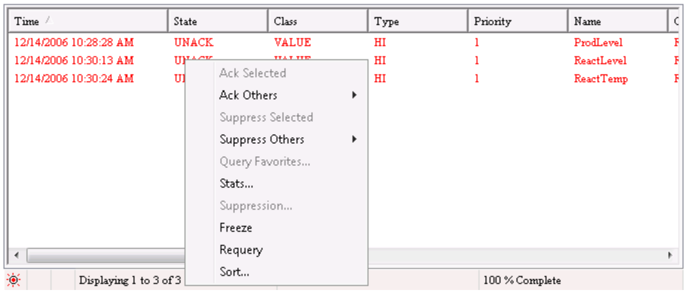
New Name: Time

New Width: 160

   a. In the New Name box, type the new column name.
   b. In the New Width box, type the column width. The column width can range from 1 to 999 pixels.
   c. Click OK.
7. Click OK in the Column Details dialog box.
8. Click Apply.

Controlling Access to Features at Run Time

If you right-click on the Alarm Viewer control during run time, a context-sensitive (shortcut) menu appears.



Time	State	Class	Type	Priority	Name	C
12/14/2006 10:28:28 AM	UNACK	VALUE	HI	1	ProdLevel	F
12/14/2006 10:30:13 AM	UNACK	VALUE	HI	1	ReactLevel	F
12/14/2006 10:30:24 AM	UI		HI	1	ReactTemp	F

Displaying 1 to 3 of 3

100 % Complete

You can control which menu commands are shown in the shortcut menu.

To configure the shortcut menu

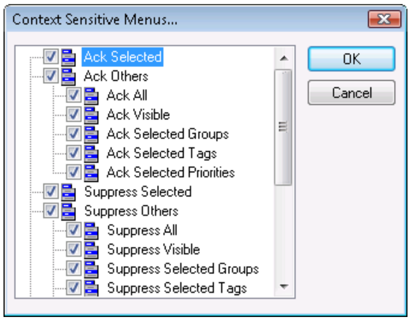
1. Right-click the Alarm Viewer control, and then click Properties. The AlarmViewerCtrl Properties dialog box appears.

2. Click the General tab.

3. Select the Show Context Sensitive Menu check box.

4. Click Configure Context Menus.

   The Context Sensitive Menus dialog box appears.



Context Sensitive Menus...

- ☑ Ack Selected
- ☑ Ack Others
  - ☑ Ack All
  - ☑ Ack Visible
  - ☑ Ack Selected Groups
  - ☑ Ack Selected Tags
  - ☑ Ack Selected Priorities
- ☑ Suppress Selected
- ☑ Suppress Others
  - ☑ Suppress All
  - ☑ Suppress Visible
  - ☑ Suppress Selected Groups
  - ☑ Suppress Selected Tags

   This dialog box shows a hierarchical list of commands that can appear in an Alarm Viewer control shortcut menu.

5. Configure the shortcut menu options. You must select at least one shortcut menu command.

This command	Allows the run-time user to
Ack Selected	Acknowledge selected alarms. If **Ack Selected** and **Ack Others** menu items are both unchecked, the **Use Default Ack Comment** check box and the text box are disabled.
Ack Others	Acknowledge alarms by other methods. The user can select which alarms to acknowledge. If **Ack Others** is selected, you must select at least one of the submenu items.
Ack All	Acknowledge all active alarms.
Ack Visible	Acknowledge visible alarms.

Ack Selected Groups	Acknowledge all alarms with the same group name as the selected group(s) and with the same provider name.
Ack Selected Tags	Acknowledge all alarms with the same group name as the selected tag(s) and with the same provider, group, and priority.
Ack Selected Priorities	Acknowledge all alarms with the same priority as the selected priority or priorities and with the same provider and group.
Suppress Selected	Suppress selected alarms.
Suppress Others	Suppress alarms by other methods shown in the shortcut menu.
Suppress All	Suppress all alarms.
Suppress Visible	Suppress all visible alarms.
Suppress Selected Groups	Suppress all alarms with the same group name as the selected group(s).
Suppress Selected Tags	Suppress all alarms with the same tagname as the selected tag(s).
Suppress Selected Priorities	Suppress all alarms with the same priority as the selected priority or priorities.
Unsuppress All	Unsuppress all suppressed alarms.
Query Favorites	Open the Alarm Query dialog box.
Stats	Open the Alarm Statistics dialog box.
Suppression	Open the Alarm Suppression dialog box.
Freeze	Toggle the freeze/unfreeze mode of the Alarm Viewer control.
Requery	Re-run the alarm query.
Sort	Open the Sort dialog box.

6. Click **OK**.
7. Click **Row Selection** to enable users to select a row from the Alarm Viewer control during run time.
8. Click **Use Extended Selection** to enable users to select multiple alarm records simultaneously from the Alarm Viewer control using the **SHIFT** or **CTRL** keys.
9. Click **Apply**.

Selecting the Alarms to Display

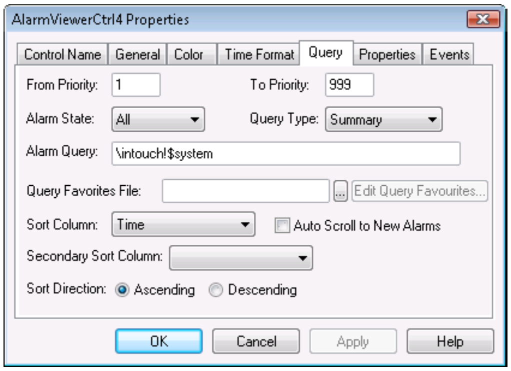
The Alarm Viewer control can show summaries of active alarms or listings of historical alarms.

To set general alarm query properties

1. Right-click the Alarm Viewer control and then click **Properties**. The AlarmViewerCtrl Properties dialog box appears.
2. Click the **General** tab.
3. Select the **Perform Query on Startup** check box to automatically update the Alarm Viewer control using default query properties when the application starts.
4. Select the **Show Message** check box to show a default message when there are no alarms. In the text box, type the message to show.
5. Click **Apply**.

To configure the query default

1. Right-click the Alarm Viewer control and then click **Properties**. The AlarmViewerCtrl Properties dialog box appears.
2. Click the **Query** tab.



From Priority: 1
To Priority: 999
Alarm State: All
Query Type: Summary
Alarm Query: \intouch!$system
Query Favorites File:
Sort Column: Time
□ Auto Scroll to New Alarms
Secondary Sort Column:
Sort Direction: ● Ascending ○ Descending

3. In the **From Priority** box, type the minimum alarm priority value (1 to 999).
4. In the **To Priority** box, type the maximum alarm priority value (1 to 999).
5. Click the **Query Type** arrow and select either **Historical or Summary** as the default run-time alarm display.

   The default type of display can be changed during run time by running a QuickScript containing a query function. For example, if the script includes the ApplyQuery() method with its Type parameter set to “Summary,” then the grid shows a summary of current alarms. Conversely, if the same grid has an ApplyQuery() method run against it with the Type parameter set to "Historical", it shows historical alarms. The QueryType property reflects the current state of the alarm display.
6. In the **Alarm Query** box, type a valid alarm query. For example, type \InTouch!$System to query for all alarms that belong to the default $System alarm group.
7. Click OK.

Using Query Favorites to Create Custom Saved Queries

You can configure a list of query favorites for operators to select from a shortcut menu.

If WindowViewer is running on Windows Vista or newer operating systems, make sure that you put the query favorites file in a folder that is accessible to Windows Vista or newer standard users. If WindowViewer always runs with the same user account, you can use:

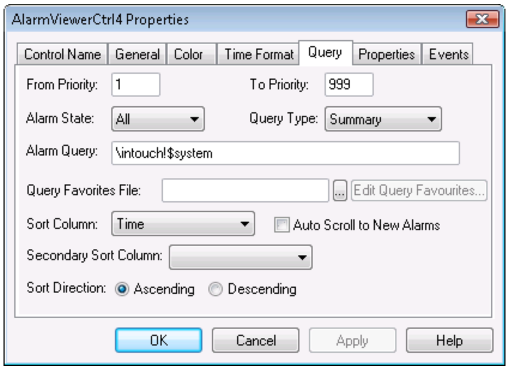
C:\Users\<username>\AppData\Local\

If different users will run WindowViewer, you can use:

C:\Users\Public\Documents\

To configure the query favorites file

1. Right-click the Alarm Viewer control and then click **Properties**. The **AlarmViewerCtrl Properties** dialog box appears.



AlarmViewerCtrl4 Properties

From Priority: 1
To Priority: 999
Alarm State: All
Query Type: Summary
Alarm Query: \intouch!$system
Query Favorites File:
Sort Column: Time
□ Auto Scroll to New Alarms
Secondary Sort Column:
Sort Direction: ● Ascending ○ Descending

2. Click the **Query** tab.
3. Configure the query favorites file.
   a. In the **Query Favorites File** box, type the network path and file name or click the ellipse button to browse for the file.
   b. To edit the Filter Favorites file, click the **Edit Query Favorites** button. The **Alarm Query** window opens, allowing you to add, modify, or delete filters from your favorites file. When you are done, click **OK** to save your changes and close the window.
4. Click **OK**.

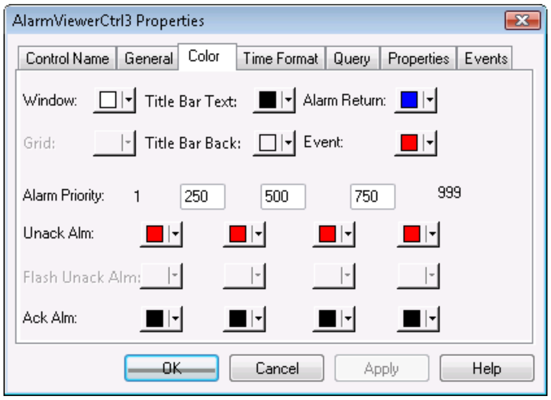
Using Colors for Various Types of Alarm Records

You can set color options for different alarm states that appear in the Alarm Viewer control.

To configure the alarm display colors

1. Right-click the Alarm Viewer control and then click Properties. The AlarmViewerCtrl Properties dialog box appears.

2. Click the Color tab.



Window: □ Title Bar Text: ■ Alarm Return: 🟦

Grid: Title Bar Back: □ Event: 🟥

Alarm Priority: 1 250 500 750 999

Unack Alm: 🟥 🟥 🟥 🟥

Flash Unack Alm:

Ack Alm: ■ ■ ■ ■

3. Click each color box to open the color palette. Click the color that you want to use in the palette for each of the following:

Property	Description
Window	Sets display background color.
Title Bar Text	Sets title bar text color (available only if Show Heading option is selected).
Alarm Return	Sets color of returned alarms (alarms that have returned to normal without being acknowledged).
Grid	Sets color of the grid. By default the grid is not shown. The default grid color is light gray. The color of the grid in the alarm object is automatically set to a contrasting color of the selected Window color.
Title Bar Background	Sets title bar background color (available only if the **Show Heading** option is selected).
Event	Sets color of events.

4. In the Alarm Priority boxes, type alarm priority numbers that serve as breakpoints for the different colors used to identify unacknowledged alarms, acknowledged alarms, and flashing unacknowledged alarms.

5. Click the UnAck Alarm and Ack Alarm color boxes to open the color palette. Click the color in the palette that you want to use.

6. To configure the alarm query to flash unacknowledged alarms, click the General tab, select the Flash Unack Alarms check box, then click the Color tab and select the Flash Unack Alarms color boxes. Select the color that you want to use for each alarm priority range.

Note: The Alarm Viewer control cannot show changes that occur in less than a second. If an alarm changes state twice within a second, the Alarm Viewer control does not recognize the change.

7. Click Apply.

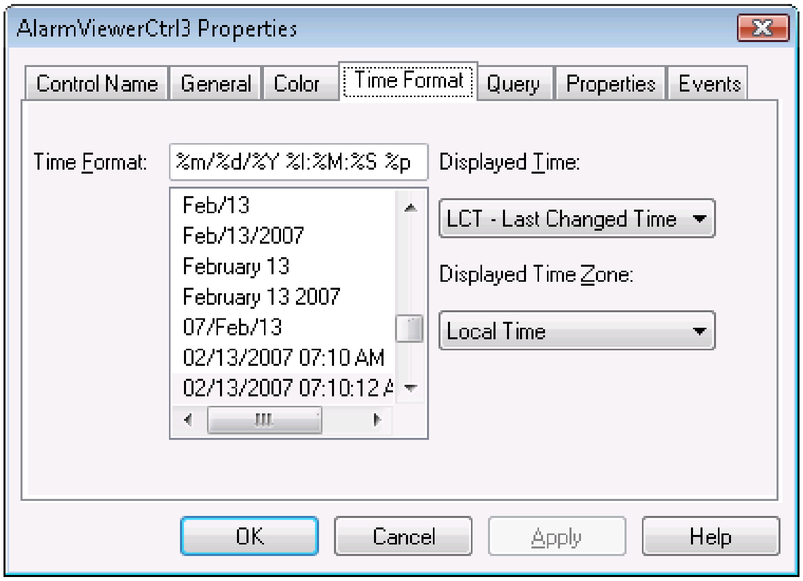
Configuring the Shown Time Format of Alarm Records

You can configure the time format for shown alarm records.

For the Alarm Viewer control, the original alarm time is the date/time stamp of the onset of the alarm. If tag is an I/O tag, then it is the time stamp from the I/O Server if that server is capable of passing time stamps.

To configure the time format

1. Right-click the **Alarm Viewer** control and then click **Properties**. The AlarmViewerCtrl Properties dialog box appears.
2. Click the **Time Format** tab.


AlarmViewerCtrl3 Properties

Time Format: %m/%d/%Y %I:%M:%S %p

Feb/13
Feb/13/2007
February 13
February 13 2007
07/Feb/13
02/13/2007 07:10 AM
02/13/2007 07:10:12 A

Displayed Time: LCT - Last Changed Time

Displayed Time Zone: Local Time

3. In the **Time Format** list, click the desired time format. The **Time Format** box shows a set of strings consisting of characters separated by the % symbol for the format you selected.

String character	Description
d	Two-digit day of the month.
b	Three-letter month abbreviation.
Y	Four-digit year.
m	Two-digit month.
y	Two-digit year.
#x	Full day and date. For example: Friday, August 10, 2007
B	Complete month name.
H	Hours in 24 hour time format.
M	Minute.
p	AM or PM (for 12 hour time format).

String character	Description
S	Seconds.
s	Fractions of a second.
I	Hours in 12 hour time format.

4. In the Displayed Time list, select the shown time:

OAT	The original alarm time, which is the date/time stamp of the onset of the alarm.
LCT	The last changed time, which is the date/time stamp of the most recent change of state for the instance of the alarm: onset of the alarm, change of sub-state, return to normal, or acknowledgment.
LCT But OAT on ACK	The last changed time, but the original alarm time on acknowledge. The last changed time is used while the alarm is unacknowledged, then the original alarm time is used after the alarm has been acknowledged.

5. In the Displayed Time Zone list, select the time zone:

GMT	Greenwich Mean Time, also known as Coordinated Universal Time, UTC, or Zulu.
Local Time	Alarm time adjusted for the local time zone.
Origin Time	Alarm time adjusted for the time zone of the alarm source.

6. Click **Apply**.

Configuring the Sort Order of Alarm Records

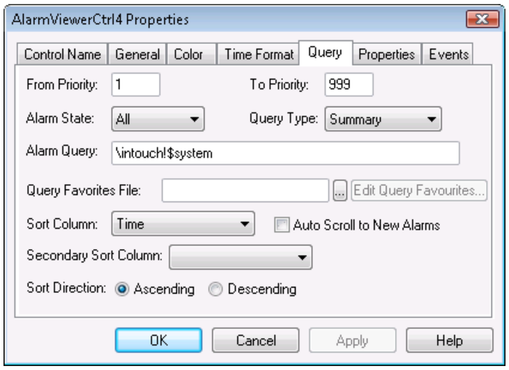
You can sort the alarm records in the list. By default, the Alarm Viewer control lists alarm records by time in ascending order.

You can sort alarm records in ascending or descending order based on a primary column and an optional secondary sort column.

To configure the sort order of alarm records

1. Right-click the Alarm Viewer control, and then click Properties. The AlarmViewerCtrl Properties dialog box appears.

2. Click the Query tab.



From Priority: 1
To Priority: 999
Alarm State: All
Query Type: Summary
Alarm Query: \intouch!$system
Query Favorites File:
Sort Column: Time
☐ Auto Scroll to New Alarms
Secondary Sort Column:
Sort Direction: ● Ascending ○ Descending

3. Select sorting options by completing the following:
   a. Select the primary sort column from the **Sort Column** list. Only visible columns appear in the **Sort Column** list. If you do not see the column you want, go to the General tab and select the column from Column Details.
   b. Select the secondary sort column from the **Secondary Sort Column** list.
   c. If you selected Time as the primary sort column, the **Auto Scroll to New Alarms** check box becomes available. Select this option if you want to automatically scroll and show new alarms as they occur.
   d. Select **Ascending** or **Descending** as the sort direction.
4. Click Apply.

Using an Alarm Viewer Control at Run Time

The Alarm Viewer control includes a shortcut menu that provides operators quick access to commands that can be applied to the display object of one or more selected alarms, alarm groups, tags, and priorities.

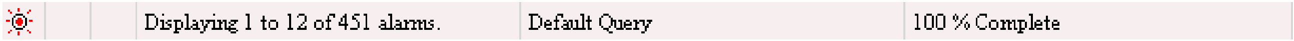
The following lists shows the commands available from the Alarm Viewer control shortcut menu:

- **Ack Selected** - Acknowledges the selected alarm(s).
- **Ack Others** - A sub-menu appears that lists other acknowledgement commands.
  - Ack All - Acknowledges all the alarms in the current alarm query. Because the alarm grid has only a limited display area, the Ack All command may acknowledge alarms that are not visible in the grid.
  - Ack Visible - Acknowledges only those alarms that are currently visible in the alarm grid.
  - Ack Selected Groups - Acknowledges all alarms that have the same group name from the same provider as one or more of the selected alarms.
  - Ack Selected Tags - Acknowledges all alarms that have the same tag from the same provider and group name and having the same priority as one or more of the selected alarms.
  - Ack Selected Priorities - Acknowledges all alarms that have the same priority from the same provider and group name as one or more of the selected alarms.
- **Suppress Selected** - The selected alarm(s) is/are suppressed.
- **Suppress Others** - A sub-menu opens that contains suppression commands.

  - Suppress All - Suppress showing current and future occurrences of all alarms.
  - Suppress Visible - Suppress showing current and future occurrences of any visible alarm.
  - Suppress Selected Groups - Suppress showing current and future occurrences of any alarm that belongs to the same groups of one or more selected alarms having the same Provider name.
  - Suppress Selected Tags - Suppress showing current and future occurrences of any alarm that belongs to the same tag name of one or more selected alarms having the same Provider name, Group name and Priority range.
  - Suppress Selected Priorities - Suppress showing current and future occurrences of any alarm that belongs to the same priorities of one or more selected alarms having the same Provider name and Group name.
  - Unsuppress All - Clears the suppression settings.
- **Query Favorites** - Shows the Alarm Query dialog box to select a previously saved alarm query. You can also add, modify and delete alarm queries.
- **Stats** - Shows the **Alarm Statistics** dialog box.
- **Suppression** - Shows the **Alarm Suppression** dialog box.
- **Freeze** - Freezes the current display.
- **Requery** - Queries the alarm provider again.
- **Sort** - Shows the **Secondary Sort** dialog box.

Viewing Status Bar Information

If you select the Show Status Bar option from the General properties page, a status bar appears at the bottom of an Alarm Viewer control during run time.


Displaying 1 to 12 of 451 alarms. Default Query 100 % Complete

The status bar contains three indicators: A status message, current alarm query, and a progress bar. These indicators provide an overview of the current state of the display query and provide details about the suppression available in the Alarm Viewer control. The right pane of the status bar is red when the control is frozen and the left pane of the status bar is red when one or more alarms are suppressed. The word "suppression" is shown in the left pane when suppression is in effect.

Using Query Favorites at Run Time

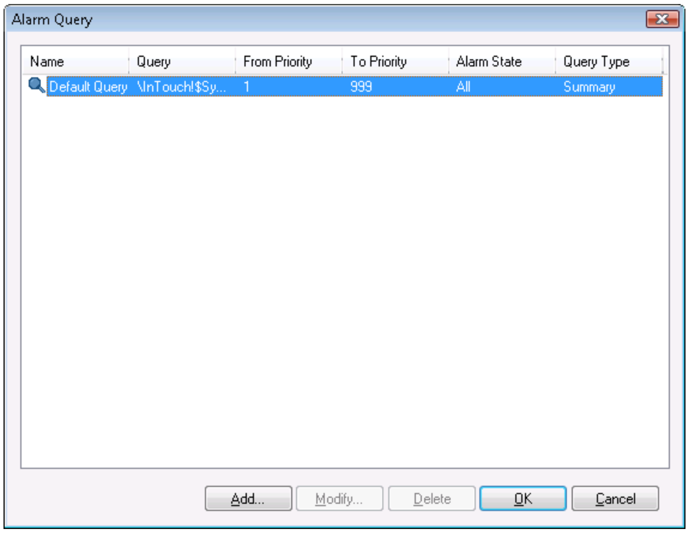
Use the Query Favorites command on the Alarm Viewer control’s shortcut menu to quickly select an alarm query from a list of previously defined alarm queries. You can also create new named queries, edit an existing query, or delete an existing query.

Changes to an alarm query are not automatically applied to other Alarm Viewer controls using the same query. Deleting an alarm query does not automatically remove the query from other Alarm Viewer controls using the same query.

Note: For multi-line alarm queries appearing in the Alarm Viewer control, line separations appear as "garbage" characters. This does not affect the function.

To select an alarm query at run time

1. Right-click the Alarm Viewer control and then click Query Favorites. The Alarm Query dialog box appears.

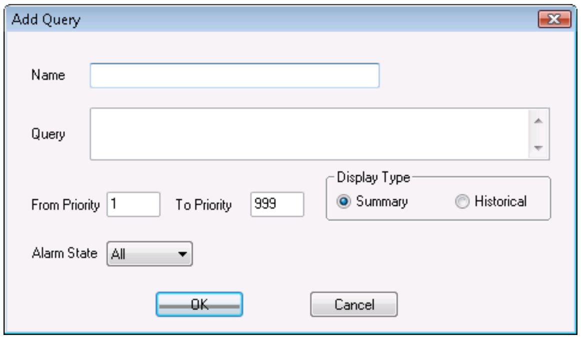


Name	Query	From Priority	To Priority	Alarm State	Query Type
Default Query	\InTouch!$Sy...	1	999	All	Summary

2. Select the named query that you want to show in the list of currently defined queries.
3. Click OK. The Alarm Viewer control now shows alarm information retrieved by the query.

To add a new named query at run time

1. Right-click the Alarm Viewer control and then click Query Favorites. The Alarm Query dialog box appears.
2. Click Add. The Add Query dialog box appears.



Name

Query

From Priority 1 To Priority 999

Display Type
● Summary ○ Historical

Alarm State All

3. Configure the query. Do the following:
   a. In the Name box, type the name that you want to use to identify the query.
   b. In the Query box, type the sets of InTouch alarm queries that you want to perform. You can specify one or more Alarm Providers and groups.
   c. In the From Priority box, type the minimum alarm priority value (1 to 999).
   d. In the To Priority box, type the maximum alarm priority value (1 to 999).
   e. Click the Alarm State arrow and select the alarm state that (**All, Ack**, **Unack**) you want to use in the alarm query.
   f. In the Display Type area, select **Summary** or **Historical** for the type of records you want to query.
4. Click OK to close the Add Query dialog box.

5. Click OK in the Alarm Query dialog box to add the query to your favorites.

To modify an existing named query at run time

1. Right-click the Alarm Viewer control and then click Query Favorites. The Alarm Query dialog box appears.
2. Select the named query that you want to modify in the list of currently defined queries.
3. Click Modify. The Modify Query dialog box appears.
4. Make the necessary modifications and then click OK.
5. Click OK in the Alarm Query dialog box.

To delete an existing named query at run time

1. Right-click the Alarm Viewer control and then click Query Favorites. The Alarm Query dialog box appears.
2. Select the named query that you want to delete in the list of currently defined queries.
3. Click Delete. When a message appears, click Yes.
4. Click OK in the Alarm Query dialog box.

Using Alarm Viewer Control ActiveX Properties

You can set the value an Alarm Viewer control property directly using a script or you can assign it to an InTouch tag or I/O reference. For more information about setting properties, see Scripting ActiveX Controls in the InTouch® HMI Scripting and Logic Guide.

The following table lists the Alarm Viewer control properties.

Property	Type	Purpose
AckAllMenu	Discrete	Enables/disables **Ack All** menu item.
AckAlmColorRange1	Integer	Sets color to be used to show acknowledged alarms with priorities in the range 1 to ColorPriorityRange1. The default priority range is 1 to 250.
AckAlmColorRange2	Integer	Sets color to be used to acknowledged alarms with priorities in the range ColorPriorityRange1 to ColorPriorityRange2. The default priority range is 250 to 500.
AckAlmColorRange3	Integer	Sets color to be used to acknowledged alarms with priorities in the range ColorPriorityRange2 to ColorPriorityRange3. The default priority range is 500 to 750.
AckAlmColorRange4	Integer	Sets color to be used to acknowledged alarms with priorities in ColorPriorityRange3 to 999. The default priority range is 750 to 999.
AckOthersMenu	Discrete	Enables/disables **Ack Others** menu item.

Property	Type	Purpose
AckSelectedGroupsMenu	Discrete	Enables/disables **Ack Selected Groups** menu item.
AckSelectedMenu	Discrete	Enables/disables **Ack Selected** menu item.
AckSelectedPrioritiesMenu	Discrete	Enables/disables **Ack Selected Priorities** menu item.
AckSelectedTagsMenu	Discrete	Enables/disables **Ack Selected Tags** menu item.
AckVisibleMenu	Discrete	Enables/disables **Ack Visible** menu item.
AlarmQuery	Message	Sets the initial alarm query. This field accepts text only; it does not accept tags. The following example uses the full path to the alarm group: \\Node\InTouch!Group This example uses the full path to the local alarm group: \InTouch!Group This example uses another Group List: GroupList
AlarmState	Message	Default alarm state to query (All, UnAck, Ack).
AlmRtnColor	Integer	Sets the color for alarms that have returned to normal and were unacknowledged. This color is also used for alarms that returned to normal from the acknowledged state but the acknowledgement state transition was not observed.
AutoScroll	Discrete	If the user scrolls the list from the beginning, this automatically jumps to the new alarm. (New alarms are defined as those that are not currently shown within the display object.)
ColorPriorityRange1	Integer	Sets the boundary of the priority range in which alarms are to be shown. The value of this property must be greater than one and less than the value for ColorPriorityRange2.

Property	Type	Purpose
ColorPriorityRange2	Integer	Sets the boundary of the priority range in which alarms are to be shown. The value of this property must be greater than the value for ColorPriorityRange1 and less than the value for ColorPriorityRange3
ColorPriorityRange3	Integer	Sets the boundary of the priority range in which alarms are to be shown. The value of this property must be greater than the value of ColorPriorityRange2 and less than 999.
ColumnResize	Discrete	Returns or sets a value that determines whether the columns can be resized at run time.
CustomMessage	Message	The default message to show when there are no alarms.
DefaultAckComment	Message	Used as a comment when the alarm is acknowledged and when the "UseDefaultAckComment" is TRUE. Otherwise, the user is prompted to enter a comment.
DisplayedTime	Message	Shows the alarm message time. The values can only be "OAT" or "LCT" or "LCT But OAT on ACK."
DisplayedTimeZone	Message	Gets or sets the current time zone string. The values can only be "GMT" or "Origin Time" or "Local Time."
EventColor	Integer	Sets color of events.
ExtendedSelection	Discrete	Allows you to select multiple alarms by holding down the Ctrl or Shift key in conjunction with the mouse button. The default is to toggle selection of alarms by simply clicking on them (available only if the Row Selection check box is selected).
FlashUnAckAlarms	Discrete	Enables or disables the flashing of unacknowledged alarms. It takes a discrete input value of 1 or 0. If this property is set to 1, unacknowledged alarms flash once per second. If this property is set to 0, unacknowledged alarms do not flash. This property corresponds to the **Flash Unack Alarms** check box on the Alarm Viewer control **General** tab.

Property	Type	Purpose
FlashUnackAlmColorRange1	Integer	Sets the flashing color for unacknowledged alarms belonging to Alarm Priority Range 1.
FlashUnackAlmColorRange2	Integer	Sets the flashing color for unacknowledged alarms belonging to Alarm Priority Range 2.
FlashUnackAlmColorRange3	Integer	Sets the flashing color for unacknowledged alarms belonging to Alarm Priority Range 3.
FlashUnackAlmColorRange4	Integer	Sets the flashing color for unacknowledged alarms belonging to Alarm Priority Range 4.
Font	None	Sets the font for the records and the header in the control.
FreezeMenu	Discrete	Enables/disables the **Freeze** menu item.
FromPriority	Integer	Sets the low priority value of the default query.
GridColor	Integer	Sets the color of the background grid.
NewAlarmEventMode	Integer	Controls the triggering of the NewAlarm event. 0 = The NewAlarm event can not be triggered. (Default). 1 = The NewAlarm event is active. 2 = The NewAlarm event is active and continually triggers when at least one new unacknowledged alarm arrives.
QueryFavoritesFile	Message	Returns or sets the query favorites file name.
QueryFavoritesMenu	Discrete	Enables/disables the Query Favorites menu item.
QueryName	String	Returns the current query name.
QueryStartup	Discrete	Automatically begins updating the grid using default query properties, if set. Otherwise, you must run the ApplyDefaultQuery or ApplyQuery method in a script to update the grid.
QueryType	Message	Sets the display type as either Summary or Historical.
RequeryMenu	Discrete	Enables/disables Requery shortcut menu item.
RetainSuppression	Discrete	Retains alarm suppression between alarm queries when the alarm query is changed.

Property	Type	Purpose
RowSelection	Discrete	Allows user to select alarms during run time.
SecondarySortColumn	Message	Returns or sets the current secondary sort column.
SelectedCount	Integer	Returns the total number of selected alarms.
ShowContextMenu	Discrete	Enables the activation of the shortcut menu.
ShowGrid	Discrete	Returns or sets a value that determines whether the grid lines are shown in the control.
ShowHeading	Discrete	Shows the title bar of the control.
ShowMessage	Discrete	Returns or sets a value that determines whether error messages are shown for the control.
ShowStatusBar	Discrete	Gets or sets a value that determines whether the status bar is shown.
SilentMode	Discrete	Gets or sets a value that determines whether the control is in silent mode.
SortColumn	Message	Gets or sets the current sort column.
SortMenu	Discrete	Enables/disables the **Sort** menu item.
SortOrder	Discrete	Gets or sets the sort direction. Possible values are "Ascending" and "Descending," represented as 0 and 1 respectively.
StatsMenu	Discrete	Enables/disables the **Stats** menu item.
SuppressAllMenu	Discrete	Enables/disables the **Suppress All** menu item.
SuppressedAlarms	Integer	Gets the total number of suppressed alarms.
SuppressionMenu	Discrete	Enables/disables the **Suppression** menu item.
SuppressOthersMenu	Discrete	Enables/disables the **Suppress Others** menu item.
SuppressSelectedGroupsMenu	Discrete	Enables/disables the **Suppress Selected Groups** menu item.
SuppressSelectedMenu	Discrete	Enables/disables the **Suppress Selected** menu item.
SuppressSelectedPrioritiesMenu	Discrete	Enables/disables the **Suppress Selected Priorities** menu item.

Property	Type	Purpose
SuppressSelectedTagsMenu	Discrete	Enables/disables **Suppress Selected Tags** menu item.
SuppressVisibleMenu	Discrete	Enables/disables the **Suppress Visible** menu item.
TimeFormat	Message	Sets the format of the alarm time stamps.
TitleBackColor	Integer	Sets title bar background color.
TitleForeColor	Integer	Sets title bar foreground color.
ToPriority	Integer	Sets the maximum priority for the alarm query.
TotalAlarms	Integer	Gets the number of alarms.
UnackAlarms	Integer	Gets the total number of unacknowledged alarms.
UnAckAlmColorRange1	Integer	Sets the color to be used to show unacknowledged alarms with priorities in the range of 1 to ColorPriorityRange1.
UnAckAlmColorRange2	Integer	Sets the color to be used to show unacknowledged alarms with priorities in the range of ColorPriorityRange1 to ColorPriorityRange2.
UnAckAlmColorRange3	Integer	Sets the color to be used to show unacknowledged alarms with priorities in the range of ColorPriorityRange2 to ColorPriorityRange3.
UnAckAlmColorRange4	Integer	Sets the color to be used to show unacknowledged alarms with priorities in the range of ColorPriorityRange3 to 999.
UnsuppressAllMenu	Discrete	Enables/disables Unsuppress All menu item.
UseDefaultAckComment	Discrete	If set to True, the default acknowledgement comment is used when the alarm is acknowledged. Otherwise, the operator is prompted to enter a comment.
WindowColor	Integer	Sets the grid background color.

Configuring Colors for ActiveX Controls

You specify a color as an integer value. The alarm ActiveX controls use the ABGR model for specifying color as a 32-bit integer, where:

A = Transparency

B = Blue

G = Green

R = Red

Transparency is not supported by the alarm ActiveX controls. Any values for the upper 8 bits are ignored.

For example, to set the color to Blue, use the following ABGR values:

A = 0

B = 255

G = 0

R = 0

The hexadecimal value for this color is 0x00FF0000. The decimal value is 16711680.

The following table shows examples of colors you can use:

Color	Hexidecimal Value	Decimal Value
White	0x00FFFFFF	16777215
Black	0x00000000	0
Blue	0x00FF0000	16711680
Red	0x000000FF	225
Green	0x0000FF00	652880

Using Alarm Viewer Control ActiveX Methods

You use the Alarm Viewer control ActiveX methods in scripts to:

- Acknowledge alarms.
- Suppress alarms.
- Get information about an alarm.
- Run alarm queries.
- Move and freeze the display.
- Sort alarm records.

- Select specific alarms.
- Show the shortcut menu, **About** dialog box, and **Alarm Statistics** dialog box.

For more information about calling methods, see Scripting ActiveX Controlsin the InTouch® HMI Scripting and Logic Guide.

Acknowledging Alarms During Run Time

Use the following methods to acknowledge alarms during run time.

- *AckSelected() Method* on page 69
- *AckAll() Method* on page 69
- *AckVisible() Method* on page 70
- *AckSelectedGroup() Method* on page 70
- *AckSelectedTag() Method* on page 70
- *AckSelectedPriority() Method* on page 71
- *AckGroup() Method* on page 71
- *AckPriority() Method* on page 71
- *AckTag() Method* on page 72

AckSelected() Method

Acknowledges alarms that are selected in the Alarm Viewer control at run time.

Syntax

```
Object.AckSelected (Comment)
```

Parameter

Comment
Alarm acknowledgment comment.

Example

Tag1 is defined as a message tag and the name of the control is AlarmViewerCtrl1.

```
Tag1 = "Alarm Comment";
#AlarmViewerCtrl1.AckSelected (Tag1);
```

AckAll() Method

Acknowledges all the alarms in the current alarm query. Because the Alarm Viewer control has a limited display area, the AckAll() method can also acknowledge alarms not shown in the display.

Syntax

```
Object.AckAll (Comment)
```

Parameter

Comment
Alarm acknowledgment comment.

Example

Tag1 is defined as a message tag and the name of the control is AlarmViewerCtrl1.

```
Tag1 = "Alarm Comment";
#AlarmViewerCtrl1.AckAll (Tag1);
```

AckVisible() Method

Acknowledges only those alarms that are currently visible in the Alarm Viewer control.

Syntax

```
Object.AckVisible (Comment)
```

Parameter

Comment
Alarm acknowledgment comment.

Example

Tag1 is defined as a message tag and the name of the control is AlarmViewerCtrl1.

```
Tag1 = "Alarm Comment";
#AlarmViewerCtrl1.AckVisible (Tag1);
```

AckSelectedGroup() Method

Acknowledges all alarms that have the same group name as one or more selected alarms.

Syntax

```
Object.AckSelectedGroup (Comment)
```

Parameter

Comment
Alarm acknowledgment comment.

Example

Tag1 is defined as a message tag and the name of the control is AlarmViewerCtrl1.

```
Tag1 = "Alarm Comment";
#AlarmViewerCtrl1.AckSelectedGroup (Tag1);
```

AckSelectedTag() Method

Acknowledges all alarms that have the same tag, group name and priority as one or more of the selected alarms.

Syntax

```
Object.AckSelectedTag (Comment)
```

Parameter

Comment
Alarm acknowledgment comment.

Example

Tag1 is defined as a message tag and the name of the control is AlarmViewerCtrl1.

```
Tag1 = "Alarm Comment";
#AlarmViewerCtrl1.AckSelectedTag (Tag1);
```

AckSelectedPriority() Method

Acknowledges all alarms that have the same priority range as one or more of the selected alarms.

Syntax

```
Object.AckSelectedPriority (Comment)
```

Parameter

Comment
Alarm acknowledgment comment.

Example

Tag1 is defined as a message tag and the name of the control is AlarmViewerCtrl1.

```
Tag1 = "Alarm Comment";
#AlarmViewerCtrl1.AckSelectedPriority (Tag1);
```

AckGroup() Method

Acknowledges all alarms for a given group name and provider.

Syntax

```
Object.AckGroup(ApplicationName, GroupName, Comment)
```

Parameter

ApplicationName
The name of the Application for example, \\node1\Intouch

GroupName
The name of the group. For example, Turbine.

Comment
Alarm acknowledgment comment.

Example

The name of the control is AlarmViewerCtrl1.

```
#AlarmViewerCtrl1.AckGroup ("\Intouch", "Turbine", "Turbine acknowledgement Comment");
```

AckPriority() Method

Acknowledges all of the alarms specified priority range having same provider name and group name.

Syntax

```
Object.AckPriority(ApplicationName, GroupName, FromPriority, ToPriority, Comment)
```

Parameter

ApplicationName
The name of the application. For example, \\node1\Intouch

GroupName
The name of the group. For example, Turbine.

FromPriority
Starting priority of alarms. For example, 100.

ToPriority
Ending priority of alarms. For example, 900.

Comment
Alarm acknowledgment comment.

Example

The name of the control is AlarmViewerCtrl1.

```
#AlarmViewerCtrl1.AckPriority ("\Intouch", "Turbine", 100, 900, "Turbine acknowledgement
Comment");
```

AckTag() Method

Acknowledges the alarms of the given tag name having the same provider name and group name within the given priority range.

Syntax

```
Object.AckTag(ApplicationName, GroupName, tag, FromPriority, ToPriority, Comment)
```

Parameter

ApplicationName
The name of the Application for example, \\node1\Intouch

GroupName
The name of the group. For example, Turbine.

tag
The name of the alarm tag. For example, Valve1.

FromPriority
Starting priority of alarms. For example, 100.

ToPriority
Ending priority of alarms. For example, 900.

Comment
Alarm acknowledgment comment.

Example

The name of the control is AlarmViewerCtrl1.

```
#AlarmViewerCtrl1.AckTag ("\Intouch", "Turbine", "Valve1", 100, 900, "Turbine acknowledgement
Comment");
```

Suppressing Alarms During Run Time

Use the following methods to suppress alarms during run time:

- *ShowSuppression() Method* on page 73
- *SuppressSelected() Method* on page 73
- *SuppressAll() Method* on page 73
- *SuppressVisible() Method* on page 74
- *SuppressSelectedGroup() Method* on page 74
- *SuppressSelectedTag() Method* on page 74
- *SuppressSelectedPriority() Method* on page 74
- *UnSuppressAll() Method* on page 75
- *SuppressGroup() Method* on page 75
- *SuppressPriority() Method* on page 75
- *SuppressTag() Method* on page 76

ShowSuppression() Method

Shows the suppression dialog box, which contains all suppressed alarms.

Syntax

```
Object.ShowSuppression()
```

Example

The name of the control is AlarmViewerCtrl1.

```
#AlarmViewerCtrl1.ShowSuppression();
```

SuppressSelected() Method

Suppresses showing current and future occurrences of the selected alarm(s).

Syntax

```
Object.SuppressSelected()
```

Example

The name of the control is AlarmViewerCtrl1.

```
#AlarmViewerCtrl1.SuppressSelected();
```

SuppressAll() Method

Suppresses showing current and future occurrences of all active alarms.

Syntax

```
Object.SuppressAll()
```

Example

The name of the control is AlarmViewerCtrl1.

```
#AlarmViewerCtrl1.SuppressAll();
```

SuppressVisible() Method

Suppresses showing current and future occurrences of any visible alarm.

Syntax

```
Object.SuppressVisible()
```

Example

The name of the control is AlarmViewerCtrl1.

```
#AlarmViewerCtrl1.SuppressVisible();
```

SuppressSelectedGroup() Method

Suppresses showing current and future occurrences of any alarm that belongs to the same Group and Provider of one or more selected alarms.

Syntax

```
Object.SuppressSelectedGroup()
```

Example

The name of the control is AlarmViewerCtrl1.

```
#AlarmViewerCtrl1.SuppressSelectedGroup();
```

SuppressSelectedTag() Method

Suppresses showing current and future occurrences of any alarm that belongs to the same tag name of one or more selected alarms having the same Group name, Provider name, and Priority range.

Syntax

```
Object.SuppressSelectedTag()
```

Example

The name of the control is AlarmViewerCtrl1.

```
#AlarmViewerCtrl1.SuppressSelectedTag();
```

SuppressSelectedPriority() Method

Suppresses showing current and future occurrences of any alarm that belongs to the same priority range of one or more selected alarms.

Syntax

```
Object.SuppressSelectedPriority()
```

Example

The name of the control is AlarmViewerCtrl1.

```
#AlarmViewerCtrl1.SuppressSelectedPriority();
```

UnSuppressAll() Method

Clears alarm suppression.

Syntax

```
Object.UnSuppressAll()
```

Example

The name of the control is AlarmViewerCtrl1.

```
#AlarmViewerCtrl1.UnSuppressAll();
```

SuppressGroup() Method

Suppresses showing current and future occurrences of any alarm that belongs to a given Group name.

Syntax

```
Object.SuppressGroup(ApplicationName, GroupName)
```

Parameter

ApplicationName
The name of the Application for example, \\node1\Intouch

GroupName
The name of the group. For example, Turbine.

Example

The name of the control is AlarmViewerCtrl1.

```
#AlarmViewerCtrl1.SuppressGroup ("\Intouch", "Turbine");
```

SuppressPriority() Method

Suppresses showing current and future occurrences of any alarm of the specified priority range, having the same Provider name and Group name.

Syntax

```
Object.SuppressPriority(ApplicationName, GroupName, FromPriority, ToPriority)
```

Parameter

ApplicationName
The name of the Application for example, \\node1\Intouch

GroupName
The name of the group. For example, Turbine.

FromPriority
Starting priority of alarms. For example, 100.

ToPriority
Ending priority of alarms. For example, 900.

Example

The name of the control is AlarmViewerCtrl1.

```
#AlarmViewerCtrl1.SuppressPriority ("\Intouch", "Turbine", 100, 900);
```

SuppressTag() Method

Suppresses showing current and future occurrences of any alarm emitted by a given tag name or group name and in the specified priority range.

Syntax

```
Object.SuppressTag(ApplicationName, GroupName, tag, FromPriority, ToPriority)
```

Parameter

ApplicationName
The name of the Application for example, \\node1\Intouch.

GroupName
The name of the group. For example, Turbine.

tag
The name of the alarm tag. For example, valve 1.

FromPriority
Starting priority of alarms. For example, 100.

ToPriority
Ending priority of alarms. For example, 900.

Example

The name of the control is AlarmViewerCtrl1.

```
#AlarmViewerCtrl1.SuppressTag ("\Intouch", "Turbine", "Valve1", 100, 900);
```

Retrieving Information About a Particular Alarm

Use the GetItem() function to retrieve information about an alarm.

GetItem() Method

Returns the data at a specified row & column as string.

Syntax

```
Object.GetItem(Integer, message)
```

Parameters

Integer
An integer expression that evaluates to a specific row in the control.

Message
A string expression that evaluates to the column name in the control.

Example

The name of the control is AlmDbView1 and tag is defined as a Message tag.

```
tag = #AlmDbView1.GetItem(1, "Group");
```

Running Alarm Queries

Use the following methods to run queries.

- *ShowQueryFavorites() Method* on page 77
- *Requery() Method* on page 77
- *ApplyQuery() Method* on page 77
- *ApplyDefaultQuery() Method* on page 78
- *SetQueryByName() Method* on page 78

ShowQueryFavorites() Method

Shows the **Query Favorites** dialog box if the QueryFavoritesFile property contains a valid query favorite file name in .xml format.

Syntax

```
Object.ShowQueryFavorites()
```

Example

The name of the control is AlarmViewerCtrl1.

```
#AlarmViewerCtrl1.ShowQueryFavorites();
```

Requery() Method

Queries the alarm provider again.

Syntax

```
Object.Requery()
```

Example

The name of the control is AlarmViewerCtrl1.

```
#AlarmViewerCtrl1.Requery();
```

ApplyQuery() Method

Performs the query as specified by its parameters Alarm Query, From and To Priorities, State of alarms to query for. and the type of alarms to retrieve.

Syntax

```
Object.ApplyQuery(AlarmQuery, FromPriority, ToPriority, State, Type)
```

Parameter

AlarmQuery
The alarm query. For example: \InTouch!$System

FromPriority
Starting priority of alarms. For example, 100.

ToPriority
Ending priority of alarms. For example, 900.

State
Specifies type of alarms to show. For example, "UnAck" or message tag. Valid states are All, UnAck, or Ack.

Type
Specifies type of query for example, Historical (Historical alarms) or Summary (Summary alarms).

Example

The name of the control is AlarmViewerCtrl1.

```
#AlarmViewerCtrl1.ApplyQuery ("\InTouch!$System",100,900,"All", "Historical");
```

ApplyDefaultQuery() Method

Performs a query using the FromPriority, ToPriority, AlarmState, QueryType, and AlarmQuery properties as specified at design time. The default properties can only be changed at development time and are not overwritten by other alarm queries.

Syntax

```
Object.ApplyDefaultQuery()
```

Example

The name of the control is AlarmViewerCtrl1.

```
#AlarmViewerCtrl1.ApplyDefaultQuery();
```

SetQueryByName() Method

Sets the current query as specified by the query name passed. The query must be in the query favorites file.

Syntax

```
Object.SetQueryByName(QueryName)
```

Parameter

QueryName
The name of the query as created by using query favorites. For example, Turbine Queries.

Example

The name of the control is AlarmTreeViewerCtrl1.

```
#AlarmTreeViewerCtrl1.SetQueryByName("Turbine Queries");
```

Moving and Freezing the Display

Use the following functions to move or freeze the display:

- *MoveWindow() Method* on page 79
- *FreezeDisplay() Method* on page 79

MoveWindow() Method

Scrolls the alarms in the control in a specified way.

Syntax

```
Object.MoveWindow(Option, Repeat)
```

Parameters

Option
The type of action to perform.

Type	Description
LineDn	Line down. The Repeat parameter controls the number of lines to be scrolled.
LineUp	Line up. The Repeat parameter controls the number of lines to be scrolled.
PageDn	Page down. The Repeat parameter controls the number of pages to be scrolled.
PageUp	Page up. The Repeat parameter controls the number of pages to be scrolled.
Top	To the top of the control
Bottom	To the bottom of the control.
PageRt	Page to the right. The Repeat parameter controls the number of pages to be scrolled.
PageLf	Page to the left. The Repeat parameter controls the number of pages to be scrolled.
Right	Scrolls right. The Repeat parameter controls the number of columns to be scrolled.
Left	Scrolls left. The Repeat parameter controls the number of columns to be scrolled.
Home	Scrolls to the top row and left most column of the control.

Repeat
The number of times this operation should be repeated.

Example

The name of the control is AlarmViewerCtrl1.

```
#AlarmViewerCtrl1.MoveWindow ("Bottom", 0);
#AlarmViewerCtrl1.MoveWindow ("LineUp", 3);
#AlarmViewerCtrl1.MoveWindow ("PageLf", 7);
```

FreezeDisplay() Method

Freezes the display.

Syntax

```
Object.FreezeDisplay(Freeze)
```

Parameter

Freeze
True = Freezes the display.
False = Unfreezes the display.

Example

Tag1 is defined as Memory discrete tag and the name of the control is AlarmViewerCtrl1.

```
Tag1 = 1;
#AlarmViewerCtrl1.FreezeDisplay(Tag1);
```

Sorting Alarm Records

Use the following functions to sort alarm records:

- *ShowSort() Method* on page 80
- *SetSort() Method* on page 80

ShowSort() Method

Shows the **Secondary Sort** dialog box if the SortMenu property is enabled.

Syntax

```
Object.ShowSort()
```

Example

The name of the control is AlmDbView1.

```
#AlmDbView1.ShowSort();
```

SetSort() Method

Sets the sort criteria as specified by the SortColumn and SortOrder properties.

Syntax

```
Object.SetSort()
```

Example

The name of the control is AlarmViewerCtrl1.

```
#AlarmViewerCtrl1.SetSort();
```

Showing Additional Information

Use the following functions to show the About dialog box and the Alarm Statistics dialog box:

- *AboutBox() Method* on page 81
- *ShowStatistics() Method* on page 81

AboutBox() Method

Shows the **About** dialog box.

Syntax

```
Object.AboutBox()
```

Example

The name of the control is AlarmPareto1.

```
#AlarmPareto1.AboutBox();
```

ShowStatistics() Method

Shows the **Alarm Statistics** dialog box.

Syntax

```
Object.ShowStatistics()
```

Example

The name of the control is AlarmViewerCtrl1.

```
#AlarmViewerCtrl1.ShowStatistics();
```

Selecting Specific Alarms

Use the following functions to select specific alarms:

- *SelectGroup() Method* on page 81
- *SelectPriority() Method* on page 82
- *SelectTag() Method* on page 82
- *SelectAll() Method* on page 83
- *SelectItem() Method* on page 83
- *UnSelectAll() Method* on page 83

SelectGroup() Method

Selects all of the alarms that contain the same alarm group name and provider name.

Syntax

```
Object.SelectGroup(ApplicationName, GroupName)
```

Parameter

ApplicationName
The name of the Application for example, \\node1\Intouch

GroupName
The name of the group. For example, Turbine.

Example

The name of the control is AlarmViewerCtrl1.

```
#AlarmViewerCtrl1.SelectGroup ("\Intouch", "Turbine");
```

SelectPriority() Method

Selects all of the alarms that are of the specified priority range, having the same provider name and group name.

Syntax

```
Object.SelectPriority(ApplicationName, GroupName, FromPriority, ToPriority)
```

Parameter

ApplicationName
The name of the Application for example, \\node1\Intouch

GroupName
The name of the group. For example, Turbine.

FromPriority
Starting priority of alarms. For example, 100.

ToPriority
Ending priority of alarms. For example, 900.

Example

The name of the control is AlarmViewerCtrl1.

```
#AlarmViewerCtrl1.SelectPriority ("\Intouch", "Turbine", 100, 900);
```

SelectTag() Method

Selects all of the alarms from a specific Provider/Group/Tag. You can also specify a Priority range, or use 1-999.

Syntax

```
Object.SelectTag(ApplicationName, GroupName, tag, FromPriority, ToPriority)
```

Parameter

ApplicationName
The name of the Application for example, \\node1\Intouch

GroupName
The name of the group. For example, Turbine.

tag
The name of the alarm tag. For example, valve 1.

FromPriority
Starting priority of alarms. For example, 100.

ToPriority
Ending priority of alarms. For example, 900.

Example

The name of the control is AlarmViewerCtrl1.

```
#AlarmViewerCtrl1.SelectTag ("\Intouch", "Turbine", "Valve1",100, 900);
```

SelectAll() Method

Toggles the selection of all the alarms in a display. Because the alarm display has only a limited display area, the SelectAll() function may select alarms that are not visible in the display.

Syntax

```
Object.SelectAll()
```

Example

```
#AlarmViewerCtrl1.SelectAll();
```

SelectItem() Method

Toggles the selection of an alarm record at a given row.

Syntax

```
Object.SelectItem(RowNumber)
```

Parameter

> *RowNumber*
> An integer value that is the row number for the alarm record to select. The first row in the control is 0.

Example

The name of the control is AlarmViewerCtrl1 and Tag1 is defined as a memory integer. This toggles the selection of the tenth alarm record in the Alarm Viewer control.

```
Tag1 = 9;
#AlarmViewerCtrl1.SelectItem (Tag1);
```

UnSelectAll() Method

Unselects all the selected records.

Syntax

```
Object.UnSelectAll()
```

Example

The name of the control is AlarmViewerCtrl1.

```
#AlarmViewerCtrl1.UnSelectAll();
```

Showing the Context Menu at Run Time

Use the ShowContext() method to show the shortcut menu at run time.

ShowContext() Method

Shows the shortcut menu if any one of RefreshMenu or ResetMenu or SortMenu property is enabled.

Syntax

```
Object.ShowContext()
```

Example

The name of the control is AlmDbView1.

```
#AlmDbView1.ShowContext();
```

Handling Errors when Using Methods and Properties

You can use the SilentMode property to hide errors during run time. If the SilentMode property is set to 1, the Alarm Viewer control does not show error messages in during run time. If it is set to 0, the Alarm Viewer control shows error messages. Error messages are always sent to the ArchestrA Log Viewer.

Using ActiveX Events to Trigger Scripts

You can assign QuickScripts to Alarm Viewer control events, such as a mouse click or double-click. When the event occurs, the QuickScript runs.

The Alarm Viewer control supports the following events:

- Click
- DoubleClick
- NewAlarm
- ShutDown
- StartUp

The Click event has one parameter called ClicknRow, which identifies the row that is clicked at run time.

The DoubleClick event has one parameter called DoubleClicknRow, which identifies the row that is double-clicked at run time.

Click and DoubleClick events are zero-based. When Click and/or DoubleClick events are published for the user, the row count in the display starts with 0.

Note: The Alarm Viewer control ignores the user interface methods when they are called from StartUp event because the control is not visible yet. These include: ShowSort(), ShowContext(), GetSelectedItem(), GetNext(), GetPrevious() and AboutBox().

For more information about scripting ActiveX events, see Scripting ActiveX Controlsin the InTouch® HMI Scripting and Logic Guide.

Running a Script When a New Alarm is Detected

You can configure the Alarm Viewer control to run an ActiveX event script when the Alarm Viewer control detects a new unacknowledged alarm (that is, any alarm that transitions from a normal state to an unacknowledged state and meets the control's query and priority filtering criteria).

The NewAlarmEventMode property controls triggering the NewAlarm event.

- If you set NewAlarmEventMode property to 0, the NewAlarm event does not trigger. This is the default.
- If you set the NewAlarmEventMode property to 1, and a new alarm occurs:
    - An event is triggered.
    - The ActiveX event script associated with the NewAlarm event runs.

  - The NewAlarmEventMode property is set to 0.

  You must change the NewAlarmEventMode property back to 1 to process subsequent events.

  Use this setting if the application performs an action that should not be performed again until the condition has been corrected or acknowledged. For example, when the event triggers, the ActiveX script can play an alarm sound until the alarm is acknowledged. Then the alarm sound can play again the next time a new alarm is received.

- If you set the NewAlarmEventMode property to 2, the NewAlarm event is active and continually triggers when at least one new unacknowledged alarm arrives. You do not need to change the value to process subsequent events. The new event triggers at most one time per second, regardless of how many additional new alarms arrive in the same second.

Chapter 5

Acknowledging Alarms in Real Time

About Acknowledging Alarms in Real Time

When tag data transitions from a normal to an alarm state, a new instance of its alarm is generated. The InTouch Distributed Alarm system tracks each alarm instance through the following states:

- When the tag first enters the alarmed state
- When the alarm makes a sub-state transition, if the alarm is a multi-state alarm
- When the alarm returns to normal
- Whether the alarm is waiting for an acknowledgment
- When the alarm is acknowledged

The life cycle of an alarm instance ends when the tag value associated with the alarm returns to a normal, unalarmed state. A subsequent transition to the alarmed state generates a new alarm instance.

Understanding Alarm Acknowledgement Models

The InTouch HMI supports three models of alarm acknowledgement:

- For condition-oriented alarms, an acknowledgment counts against all entries into the alarmed state up to the time of the acknowledgment.
- For expanded summary alarms, an acknowledgment is only for a particular transition, whether to an alarmed state, to a sub-state, or a return to normal. All transitions into different alarm sub-states must be acknowledged before the overall alarm is considered acknowledged.
- For event-oriented alarms (as in OPC), an acknowledgment is accepted only if it refers to the most recent activation event.

Condition Acknowledgement Alarm Model

For condition-oriented alarms, an acknowledgment counts against all entries into the alarmed state up to the time of the acknowledgment.

Acknowledgment is for the instance of the alarm. An alarm instance waits for an acknowledgement when it first enters the alarmed state. If the alarm is acknowledged and subsequently transitions to a new alarmed sub-state (for example from "Hi" to HiHi"), it begins waiting for another acknowledgement. Whenever the acknowledgement is received, it is accepted and applies to all transitions of the alarm that have occurred so far.

The alarm is considered acknowledged when the most recent instance is acknowledged.

Expanded Summary Alarm Model

For expanded summary alarms, an acknowledgment is only for a particular transition, whether to an alarmed state, to a sub-state, or a return to normal. All transitions into different alarm sub-states must be acknowledged before the overall alarm is considered acknowledged.

The initial entry to the alarmed state must be acknowledged, and the return to normal must also be separately acknowledged.

Any transition to a new alarm sub-state is treated as a new occurrence that must be acknowledged, and whose return to normal must also be acknowledged. Sub-state transitions are treated as belonging to a "return to normal group," starting with the first entry into an alarmed state when the item was previously normal.

If the item returns to normal and subsequently enters the alarmed state again, a new return to normal group is created.

Each transition must be acknowledged individually and explicitly; and the alarm is considered acknowledged only when the item has returned to normal and all transitions in all pending return to normal groups have been acknowledged.

Note: The term "summary" means "awaiting acknowledgment." Alarms in this model are also known as "ring-back" alarms.

Expanded Summary Alarm Records

For expanded summary alarms, when an alarm occurs, a record is generated in the alarm display object showing that an alarm condition has occurred. The record shows the date and time stamp of the alarm. This record remains visible until an operator acknowledges the alarm and a return-to-normal state has occurred. If the return-to-normal state occurs before the alarm is acknowledged, then two records are shown in the alarm object.

For example, a boiler’s temperature exceeds the high limit state and triggers an alarm. Later, the boiler returns to its normal temperature range before an operator can acknowledge the alarm. The alarm system generates a record that a high limit alarm occurred and an another record indicating the alarm was not acknowledged.

Using Expanded Summary Alarms

When you define a tag and select **Expanded Summary** as its acknowledgement model, an operator must acknowledge that an alarm occurred even if the state triggering the alarm has returned to normal. Acknowledging an alarm changes the color of the alarm entry but does not change the time stamp. Alarms only clear from the display when they are acknowledged and the alarm has returned to a normal state.

Note: When you define a tag with the expanded summary acknowledgement mode, the **RTN Implies ACK** option in the Alarm Properties dialog box does not apply to the tag.

Event-Based Alarm Model

For event-oriented alarms (as in OPC), an acknowledgment is accepted only if it refers to the most recent activation event.

An alarm instance begins waiting for an acknowledgement when it first enters the alarmed state. If the instance is acknowledged and subsequently transitions to a new alarmed sub-state, it begins waiting for another acknowledgement. Each subsequent transition is assigned a sequence number, and the acknowledgement must have attached to it the sequence number of the transition to which it is responding.

The acknowledgement is accepted only if it is for the most recent transition. If it is accepted, it applies to all transactions of the alarm that have occurred so far. The alarm is considered acknowledged when the most recent instance is acknowledged.

A rejected acknowledgement may be logged for diagnostic purposes, but is not otherwise tracked in the system.

The event-oriented model ensures that if an alarm is changing between different states, the acknowledgement corresponds to current information. In systems with small latency times, this may look just like condition-oriented alarms. In other environments, such as the Internet, the features of this model may become important.

Checking the Acknowledgement Model of a Tag at Run Time

Use the .AlarmAckModel dotfield to monitor the acknowledgement model associated with a tag.

.AlarmAckModel Dotfield

Monitors the acknowledgment model associated with a tag as follows:

0 = condition (default)

1 = event oriented

2 = expanded summary

Category

Alarms

Usage

```
Tagname.AlarmAckModel
```

Parameter

Tagname
Any discrete, integer, real, indirect discrete and analog tag.

Remarks

This dotfield defaults to 0 (condition acknowledgment model).

Data Type

Analog (read-only)

Valid Values

0, 1 or 2

Example

The body of this IF-THEN statement is processed if the PumpStation tag is associated with an event alarm:

```
IF (PumpStation.AlarmAckModel == 1) THEN
   MyAlarmMessage="PumpStation is an Event alarm";
ENDIF;
```

See Also

.Alarm, .Ack, .UnAck, .AckDev, .AckDSC, .AckROC

Using Dotfields to Acknowledge Alarms

You can create scripts that use dotfields to acknowledge all current alarms, selected alarms, or only alarms of a specific type.

Acknowledging Alarms or Alarm Groups

You can create scripts that use the following dotfields to acknowledge alarms of specified local tags or alarms within specified alarm groups.

- *.Ack Dotfield* on page 89
- *.UnAck Dotfield* on page 90

You cannot acknowledge alarms that originate from the Application Server using these dotfields.

To acknowledge all local alarms of the running InTouch application, use the $System alarm group in combination with the appropriate .Ack dotfield.

.Ack Dotfield

Monitors or controls the alarm acknowledgment status of all types of local alarms.

Category

Alarms

Usage

```
TagName.Ack=1;
```

Parameter

TagName
Any discrete, integer, real, indirect discrete and analog tag, or alarm group.

Remarks

Set this dotfield to a value of 1 to acknowledge any outstanding alarms associated with a specified tag or alarm group. When the specified tag is an alarm group, all unacknowledged alarms associated with the tags within the specified group are acknowledged. When the specified tag is of any type other than alarm group, only the unacknowledged alarm associated with that tag is acknowledged. Setting the .Ack dotfield to a value other than 1 has no meaning.

Data Type

Discrete (read/write)

Valid Values

1

Example

The following statement acknowledges an alarm associated with the Tag1 tag:

```
Tag1.Ack=1;
```

This next example would be used to acknowledge all unacknowledged alarms within the PumpStation alarm group:

```
PumpStation.Ack=1;
```

Note: The .ACK dotfield has an inverse dotfield called .UnAck. When an unacknowledged alarm occurs, .UnAck is set to 1. .UnAck can then be used with animation links or in condition scripts to trigger annunciators for any unacknowledged alarms.

See Also

Alarm, UnAck, AckDev, AckROC, AckDSC, AckValue, AlarmAckModel

.UnAck Dotfield

Monitors or controls the alarm acknowledgment status of local alarms.

Category

Alarms

Usage

```
TagName.UnAck=0;
```

Parameter

TagName
Any discrete, integer, real, indirect discrete and analog tag, or alarm group.

Remarks

Set this dotfield to a value of 0 to acknowledge any outstanding alarms associated with the specified tag or alarm group. When the specified tag is an alarm group, all unacknowledged alarms associated with the tags within the specified group are acknowledged. When the specified tag is any other type, only the unacknowledged alarm associated with that tag is acknowledged. Setting this dotfield to a value other than 0 has no meaning.

Data Type

Discrete (read/reset) only

Valid Values

0

Example

The following statement acknowledges any alarm associated with the Tag1 tag.

```
Tag1.UnAck=0;
```

This statement acknowledges all unacknowledged alarms within the alarm group named PumpStation.

```
PumpStation.UnAck=0;
```

.UnAck has an inverse dotfield called .Ack. When an alarm has been acknowledged, the value of the .Ack dotfield is set to 1.

See Also

.Ack, Ack(), .Alarm, .AlarmAckModel

Acknowledging Value Alarms

You can create scripts that use the .AckValue dotfield to acknowledge all value alarms of a specified local tag or all value alarms in a specified alarm group.

.AckValue Dotfield

Monitors and controls the acknowledgment of local value alarms.

Usage

```
TagName.AckValue=1;
```

Parameter

TagName
Any integer, real, indirect analog tag, or alarm group.

Remarks

Set the .**AckValue** dotfield to 1 to acknowledge any outstanding value alarms associated the specified tag/group. When the specified tag is an alarm group, all unacknowledged value alarms associated with the tags within the specified group are acknowledged. When the specified tag is of any type, only the unacknowledged value alarm associated with that tag is acknowledged.

Setting this dotfield to a value other than 1 has no meaning.

Data Type

Discrete (read/write)

Valid Values

1

Examples

The following statement acknowledges a value alarm associated with the Tag1 tag:

```
Tag1.AckValue=1;
```

This example acknowledges all unacknowledged value alarms within the alarm group named PumpStation:

```
PumpStation.AckValue=1;
```

An indirect alarm group (using GroupVar) can be used to acknowledge value alarms. For example, using an assignment such as:

```
StationAlarms.Name = "PumpStation";
```

Where StationAlarms is defined as an alarm group type tag and is then associated with PumpStation. Thus, the statement below is similar to the above examples, except it is used to acknowledge any unacknowledged value alarms within the alarm group PumpStation, which is currently associated with the StationAlarms alarm group tag.

```
StationAlarms.AckValue=1;
```

See Also

.Alarm, .AlarmValue, .Ack, .UnAck, .AckDev, .AckDSC, .AckROC, .AlarmAckModel

Acknowledging Discrete Alarms

You can create scripts that use the .AckDsc dotfield to acknowledge the discrete alarm of a specified tag or all discrete alarms of a specified alarm group.

.AckDsc Dotfield

Acknowledges the discrete alarm of a specified tag or all discrete alarms of a specified alarm group.

Usage

```
TagName.AckDsc=1;
```

Parameter

TagName
Name assigned to the discrete tag or the name of an alarm group.

Remarks

Set to 1 to acknowledge an active discrete alarm associated with the specified tag or alarm group. When the specified tag is an alarm group, all unacknowledged discrete alarms associated with the tags within the specified group are acknowledged. When the specified tag is of any type other than alarm group, only the unacknowledged discrete alarm associated with that tag is acknowledged. Setting this dotfield to a value other than 1 has no meaning.

Data Type

Discrete (read/write)

Valid Values

0 or 1

Examples

The following statement verifies if Tag1 has an active discrete alarm associated with it:

```
IF (Tag1.AlarmDsc == 1) THEN
   MyAlarmMessage="The pumping station currently has an ALARM!";
ENDIF;
```

This dotfield is not linked to the .Ack or .UnAck dotfield. Therefore, even when an active alarm has been acknowledged, this dotfield remains equal to 1.

See Also

.Alarm, .AlarmDSC, .Ack, .UnAck, .AckDev, .AckDSC, .AckROC, .AckValue, .AlarmAckModel

Acknowledging Deviation Alarms

You can create scripts that use the .AckDev dotfield to acknowledge the minor or major deviation alarm of a specified local tag or the deviation alarms of a specified alarm group.

.AckDev Dotfield

Acknowledges the minor or major deviation alarms of a specified local tag or all deviation alarms of a specified alarm group.

Category

Alarm

Usage

```
TagName.AckDev=1;
```

Parameter

TagName
Any integer, real, indirect analog tag, or alarm group.

Remarks

Set this dotfield to a value of 1 to acknowledge any outstanding deviation alarms associated with the specified tag or alarm group. When the specified tag is an alarm group, all unacknowledged deviation alarms associated with the tags within the specified group are acknowledged. Setting this dotfield to a value other than 1 has no meaning.

Data Type

Discrete (read/write)

Valid Values

1

Example

The following statement acknowledges a deviation alarm associated with the Tag1 tag:

```
Tag1.AckDev=1;
```

This next example would be used to acknowledge all unacknowledged deviation alarms within the alarm group named PumpStation:

```
PumpStation.AckDev=1;
```

See Also

.Alarm, .AlarmDev, .Ack, .UnAck, .AckDSC, .AckROC, .AckValue, .AlarmAckModel

Acknowledging Rate-of-Change Alarms

You can create scripts that use the .AckROC dotfield to acknowledge the rate-of-change alarm of a specified local tag or the rate-of-change alarms of a specified alarm group.

.AckROC Dotfield

Acknowledges the rate-of-change alarm of a specified local tag or all rate-of-change alarms of a specified alarm group.

Usage

```
TagName.AckROC=1;
```

Parameter

TagName
Name assigned to the integer, real, or indirect analog tag or the name of an alarm group.

Remarks

Set this dotfield to a value of 1 to acknowledge any outstanding rate-of-change alarms associated with a specified tag or alarm group. When the specified tag is an alarm group, all unacknowledged rate-of-change alarms associated with the tags within the specified group are acknowledged. When the specified tag is of any type other than alarm group, only the unacknowledged rate-of-change alarm associated with that tag is acknowledged. Setting this dotfield to a value other than 1 has no meaning.

Data Type

Discrete (read/write)

Valid Values

1

Examples

The following statement acknowledges a rate-of-change alarm associated with a tag named Tag1.

```
Tag1.AckROC=1;
```

This next example acknowledges all unacknowledged rate-of-change alarms within the alarm group named PumpStation:

```
PumpStation.AckROC=1;
```

See Also

.Alarm, .AlarmROC, .Ack, .UnAck, .AckDev, .AckDSC, .AckValue, .AlarmAckModel

Using Script Functions to Acknowledge Alarms

You can use the Ack() script function to acknowledge all alarms for a tag or group.

If you are using the Alarm Viewer control, you can acknowledge alarms using methods. For more information, see *Acknowledging Alarms* on page 345.

If you are using the Distributed Alarm Display object, use script functions to acknowledge alarms. For more information, see *Acknowledging Alarms* on page 345.

Ack() Function

Acknowledges any unacknowledged InTouch alarm.

Category

Alarm

Syntax

```
Ack TagName;
```

Arguments

TagName
Any InTouch tag, alarm group, or group variable.

Remarks

This function can be applied to a tag or an alarm group.

Examples

The following statements can be used on a push button to acknowledge any unacknowledged alarm:

```
Ack $System; {All alarms}
Ack Tagname;
Ack GroupName;
```

See Also

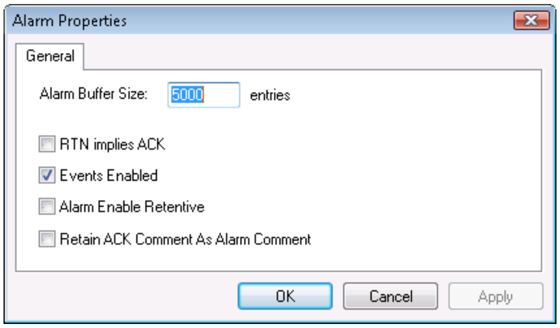
almAckAll(), almAckGroup() almAckTag(), almAckDisplay(), almAckRecent(), almAckPriority(). almAckSelect(), almAckSelectedGroup(), almAckSelectedPriority(), almAckSelectedTag()

Using Automatic Acknowledgement When the Tag Value Returns to Normal

The InTouch HMI can automatically acknowledge an alarm when an alarmed tag's value returns to its normal state. This option does not apply to expanded summary alarms.

To configure alarm acknowledgement on return

1. On the **Special** menu, point to **Configure**, and then click **Alarms**. The **Alarm Properties** dialog box appears.



Alarm Properties

General

Alarm Buffer Size: 5000 entries

□ RTN implies ACK
☑ Events Enabled
□ Alarm Enable Retentive
□ Retain ACK Comment As Alarm Comment

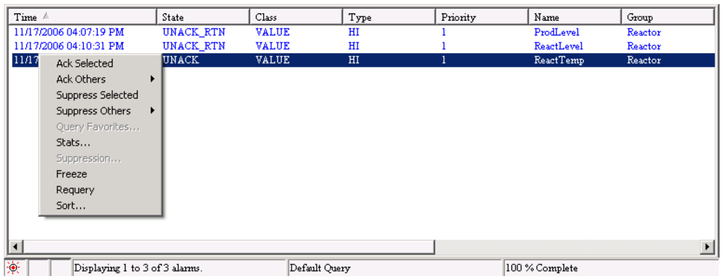
2. Select the **RTN implies ACK** check box to have the InTouch HMI automatically acknowledge alarms whose values return to the normal state (RTN).

3. Click **OK**.

Using Alarm Clients to Acknowledge Alarms

Operators acknowledge alarms that appear in the Alarm Viewer control from WindowViewer.

In the display, the **State** column shows the current acknowledgement status of the alarm record you select. Also, the text of a record is color coded to indicate its acknowledgement status.



Time	State	Class	Type	Priority	Name	Group
11/17/2006 04:07:19 PM	UNACK_RTN	VALUE	HI	1	ProdLevel	Reactor
11/17/2006 04:10:31 PM	UNACK_RTN	VALUE	HI	1	ReactLevel	Reactor
11/17	UNACK	VALUE	HI	1	ReactTemp	Reactor

Displaying 1 to 3 of 3 alarms. Default Query 100 % Complete

The alarms you acknowledge are removed from the display.

To acknowledge all alarms

1. Right-click in the display, point to **Ack Others**, and then click the appropriate command:
   - ○ Click **Ack All** to acknowledge all current alarms.
   - ○ Click **Ack Visible** to acknowledge all alarms visible in the display.

   The **Ack Comment** dialog box appears.

2. Type an optional acknowledgement comment and click **OK**.

To acknowledge selected alarms

1. Select one or more alarms.

2. Right-click and then click **Ack Selected**. The **Ack Comment** dialog box appears.

3. Type an optional acknowledgement comment and click **OK**.

To acknowledge alarms by group, tag, or priority

1. Select the alarm(s).
2. Right-click in the display, point to **Ack Others**, and then click the appropriate command:
    - Click **Ack Selected Groups** to acknowledge all alarms that belong to the selected alarm group(s).
    - Click **Ack Selected Tags** to acknowledge alarms for all tags that have the same name(s) as the selected alarm(s).
    - Click **Ack Selected Priorities** to acknowledge all alarms with the same priority or priorities as the selected alarm(s).

    The **Ack Comment** dialog box appears.
3. Type an optional acknowledgement comment and click **OK**.

Using Alarm and Acknowledgement Comments

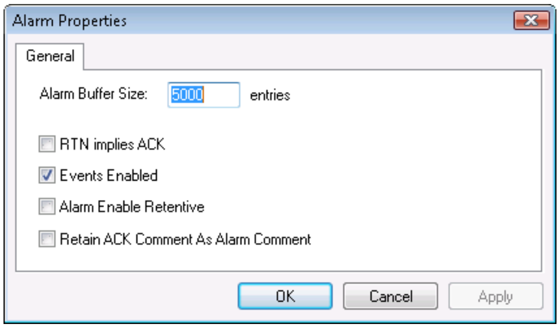
There are two kinds of comments: alarm comments and acknowledgement comments.

- The alarm comment is set when the new alarm instance occurs. The .AlarmComment dotfield is used for alarm comments and can be set or read in an InTouch script. You specify the default value for this comment in the tag's definition in the Tagname Dictionary. Alarm comments can be up to 131 characters.
- The acknowledgement comment is provided by the operator when he or she acknowledges the alarm.

You can use the acknowledgement comment to update the alarm comment in the tag database.

To allow alarm acknowledgement comments to update the .AlarmComment dotfield

1. On the **Special** menu, point to **Configure**, and then click **Alarms**. The **Alarm Properties** dialog box appears.



Alarm Buffer Size: 5000 entries

□ RTN implies ACK
☑ Events Enabled
□ Alarm Enable Retentive
□ Retain ACK Comment As Alarm Comment

2. Select the Retain ACK Comment As Alarm Comment check box to update the tag's .AlarmComment dotfield and the Tagname Dictionary with the comments entered with alarm acknowledgments.

    If you do not select this check box, the acknowledgment comment is shown with the acknowledged alarm (in the database, printouts, and displays), but .AlarmComment does not change.
3. Click **OK**.

Chapter 6

Controlling Alarm Properties of Tags and Groups at Run Time

About Controlling Alarm Properties of Tags and Groups at Run Time

You can use alarm dotfields to dynamically manage alarm conditions. Many of these dotfields are accessible using I/O, expressions, and scripts. Through I/O access, you can monitor and control a specific tag's alarm information using other Windows applications, such as Excel, or WindowViewer running on a remote node.

To access dotfields associated with a tag, use this syntax:

tag.dotfield

For example, if you want to allow run-time changes to the HiHi alarm limit on a tag named Analog_tag, you can create an Analog - User Input touch link to a button and enter Analog_tag.HiHiLimit as the expression in the link's dialog box. During run time, the operator simply clicks the button and types in a new value for the HiHi alarm limit assigned to the Analog_tag.

The following table briefly describes each alarm dotfield.

Dotfield	Description
.Ack	Monitors/controls the alarm acknowledgment status of tags and alarm groups. .Ack has an inverse tag dotfield called .UnAck. When an unacknowledged alarm occurs, .UnAck is set to 1. The .UnAck dotfield can be used in animation links or condition scripts to trigger annunciators for any unacknowledged alarms.
.AckDev	Monitors/controls the alarm acknowledgment status of deviation type alarms active on an analog tag or alarm group.
.AckDsc	Monitors/controls the current acknowledgement status of a discrete tag.
.AckROC	Monitors/controls the alarm acknowledgment status of rate-of-change type alarms active on the tag.
.AckValue	Monitors the alarm acknowledgment status of value type alarms active on the tag.

Dotfield	Description
.Alarm	Signals that an alarm condition exists.
.AlarmAckModel	Monitors the acknowledgement model associated with the tag as follows: 0=condition (default) 1=event 2=expanded Applies to discrete or analog tags with alarms. Read only, but can be configured in WindowMaker.
.AlarmDev	Signals that a deviation alarm exists.
.AlarmDevCount	Tracks the total number of active deviation alarms for a given tag or alarm group.
.AlarmDevDeadband	Monitors/controls the deviation percentage deadband for both minor and major deviation alarms.
.AlarmDevUnAckCount	Tracks the number of unacknowledged deviation alarms active on a given tag or alarm group.
.AlarmDisabled	Disables/enables events and alarms. Applies to discrete and analog tags with alarms, or to alarm groups.
.AlarmDsc	Indicates that a discrete alarm condition is currently active.
.AlarmDscCount	Tracks the total number of discrete alarms active on a given tag or alarm group.
.AlarmDscDisabled	Indicates whether or not the tag can generate discrete alarms. **Note:** This dotfield is the same as .AlarmDisabled dotfield for a discrete tag.
.AlarmDscEnabled	Indicates whether or not the tag can generate discrete alarms. **Note:** This dotfield is the same as .AlarmEnabled dotfield for a discrete tag.
.AlarmDscInhibitor	Returns the name of the inhibitor tag assigned to the discrete alarm (if any) for this tag.
.AlarmDscUnAckCount	Tracks the total number of unacknowledged discrete alarms active for a given tag or alarm group.
.AlarmEnabled	Disables/enables events and alarms.
.AlarmHiDisabled	Disables/enables the High limit for analog tags with alarms.
.AlarmHiHiDisabled	Disables/enables the HiHi limit for analog tags with alarms.

Dotfield	Description
.AlarmHiHiEnabled	Disables/enables the HiHi limit for analog tags with alarms.
.AlarmHiHiInhibitor	Returns the inhibitor tag reference for the HiHi limit. Applies to analog tags with alarms. Read only but can be configured in WindowMaker.
.AlarmHiInhibitor	Returns the inhibitor tag reference for the High limit. Applies to analog tags with alarms. Read only but can be configured in WindowMaker.
.AlarmLoDisabled	Disables/enables the Low limit for analog tags with alarms.
.AlarmLoEnabled	Disables/enables the Low limit for analog tags with alarms.
.AlarmLoInhibitor	Returns the inhibitor tag reference for the Low limit. Applies to analog tags with alarms. Read only but can be configured in WindowMaker.
.AlarmLoLoDisabled	Disables/enables the LoLo limit for analog tags with alarms.
.AlarmLoLoEnabled	Disables/enables the LoLo limit for analog tags with alarms.
.AlarmLoLoInhibitor	Returns the inhibitor tag reference for the LoLo limit. Applies to analog tags with alarms. Read only but can be configured in WindowMaker.
.AlarmMajDevDisabled	Disables/enables the Major Deviation limit for analog tags with alarms.
.AlarmMajDevEnabled	Disables/enables the Major Deviation limit for analog tags with alarms.
.AlarmMajDevInhibitor	Returns the inhibitor tag reference for the Major Deviation limit. Applies to analog tags with alarms. Read only but can be configured in WindowMaker.
.AlarmMinDevDisabled	Disables/enables the Minor Deviation limit for analog tags with alarms.
.AlarmMinDevEnabled	Disables/enables the Minor Deviation limit for analog tags with alarms.
.AlarmMinDevInhibitor	Returns the inhibitor tag reference for the Minor Deviation limit. Applies to analog tags with alarms. Read only but can be configured in WindowMaker.
.AlarmROC	Signals that a rate-of-change type alarm exists.
.AlarmROCCount	Tracks the total number of rate of change alarms active on a given tag or alarm group.
.AlarmROCDisabled	Disables/enables the rate of change limit for analog tags with alarms.

Dotfield	Description
.AlarmROCEnabled	Disables/enables the rate of change limit for analog tags with alarms.
.AlarmROCInhibitor	Returns the inhibitor tag reference for the rate of change limit. Applies to analog tags with alarms. Read only but can be configured in WindowMaker.
.AlarmROCUnAckCount	Tracks the total number of unacknowledged rate of change alarms on a given tag or alarm group.
.AlarmTotalCount	Tracks the total number of alarms active for a given tag or alarm group.
.AlarmUnAckCount	Tracks the total number of unacknowledged alarms active for a tag or alarm group.
.AlarmUserDefNum1Set	Read/write real (floating point), default 0 and value not set. Applies to discrete tags with alarms, to analog tags with alarms, or to alarm groups. **Note:** The value of this dotfield is attached to the alarm, but ONLY if a value has been set, for example, by a script or a POKE.
.AlarmUserDefNum2	Read/write real (floating point), default 0 and value not set. Applies to discrete tags with alarms, to analog tags with alarms, or to alarm groups. **Note:** The value of this dotfield is attached to the alarm, but ONLY if a value has been set, for example, by a script or a POKE.
.AlarmUserDefNum2Set	Read/write discrete. TRUE if a script has defined the .AlarmUserDefNum2 for the corresponding tag. To disassociate the value of .AlarmUserDefNum2 for the tag, set this dotfield to FALSE. The default is FALSE.
.AlarmUserDefStr	Read/write text string, default "" and value not set. Applies to discrete tags with alarms, to analog tags with alarms, or to alarm groups. **Note:** The value of this dotfield is attached to the alarm, but ONLY if a value has been set, for example, by a script or a POKE.
.AlarmUserDefStrSet	Read/write discrete. TRUE if a script has defined the .AlarmUserDefStr for the corresponding tag. To disassociate the value of .AlarmUserDefStr for the tag, set this dotfield to FALSE. The default is FALSE.
.AlarmValDeadband	Monitors/controls the value of an alarm’s value deadband.

Dotfield	Description
.AlarmValueCount	Tracks the total number of value alarms active on a given tagname or alarm group.
.AlarmValueUnAckCount	Tracks the total number of unacknowledged value alarms active on a given tagname or alarm group.
.DevTarget	Monitors/controls the target for minor and major deviation alarms.
.HiLimit, .HiHiLimit, .LoLimit, .LoLoLimit	Read/write analog tagname dotfields that monitors /controls the limits for value alarm checks. These dotfields are only valid for integer and real tags.
.HiStatus, .HiHiStatus, .LoStatus, .LoLoStatus	Read only discrete dotfields that determines whether an alarm of a specified type exists. These fields are only valid for integer and real tags.
.MajorDevPct	Read/write integer dotfield that monitors or controls the major percentage of deviation for alarm checking.
.MajorDevStatus	Read-only discrete dotfield that determines whether a major deviation alarm exists for the specified tagname.
.MinorDevPct	Read/write integer dotfield monitors and/or controls the minor percentage of deviation for alarm checking.
.MinorDevStatus	Read only discrete dotfield used to determine whether a minor deviation alarm exists for the specified tagname.
.Name	Read/write message dotfield used to display the actual name of the tagname. For example, it can be used to determine the name of an Alarm Group that a Group Variable is pointing to, or the name of a TagID tags. It can also be written to change the Alarm Group that a Group Variable is pointing to.
.Normal	Read only discrete dotfield that is equal to 1 when there are no alarms for the specified tagname. This dotfield is valid for Alarm Groups and Group Variables as well as ordinary tags.
.ROCPct	Read/write dotfield used to monitor and/or control the rate of change for alarm checking.
.ROCStatus	Read only discrete dotfield used to determine whether a rate-of-change alarm exists for the specified tag.

Determining if Tags or Alarm Groups are in anAlarm Condition

Use the following dotfields and a system tag to determine the status of alarms in a running application. You can find out if a new alarm occurred or whether a tag or alarm group is in alarm or is the normal state. You can also find out the status of discrete, deviation, and rate-of-change alarms.

- *$NewAlarm System Tag* on page 103
- *$System System Tag* on page 104
- *.Alarm Dotfield* on page 104
- *.Normal Dotfield*
- *.AlarmDsc Dotfield* on page 105
- *.AlarmDev Dotfield* on page 106
- *.AlarmROC Dotfield* on page 107
- *.LoStatus Dotfield* on page 108
- *.LoLoStatus Dotfield*
- *.HiStatus Dotfield* on page 109
- *.HiHiStatus Dotfield* on page 110
- *.MinorDevStatus Dotfield* on page 111
- *.MajorDevStatus Dotfield* on page 111
- *.ROCStatus Dotfield* on page 112

$NewAlarm System Tag

Set to 1 if a new alarm occurs in a running application. The **$NewAlarm** system tag is not set for remote alarms.

Syntax

```
$NewAlarm=value;
```

Data Type

Discrete (read/write)

Valid Values

0 or 1

Remarks

Associate the **$NewAlarm** system tag with an animation object in an application window. For example, associate the tag with an acknowledgment button that an operator clicks to reset the value of the tag to 0 and acknowledge the alarm. You can also link the **$NewAlarm** system tag to the **PlaySound** logic function to sound an audible warning when an alarm occurs.

Example

Add a button to an alarm acknowledgement window and attach the following action script that runs when the operator clicks the button.

```
Ack $System;
$NewAlarm=0;
HideSelf;
```

When the operator clicks on the button, all alarms are acknowledged, the **$NewAlarm** system tag is reset to 0, and the alarm acknowledgement window is hidden from view.

$System System Tag

The default alarm group.

Category

alarms

Usage

```
$System
```

Remarks

By default, tags are assigned to this root alarm group. All defined alarm groups are descendants of $System.

Data Type

System alarm group

Example(s)

```
$System.Ack = 1; {Acknowledges All Alarms}
```

.Alarm Dotfield

Returns 0 when a specified tag or alarm group is not currently in an alarm state. When an alarm occurs, the **.Alarm dotfield** returns 1. It remains at 1 until the alarm condition no longer exists. The .**Alarm** dotfield has an inverse dotfield called .**Normal**.

If the specified tag is the name of an alarm group, the **.Alarm** dotfield returns 1 if any of the tags that belong to the group are in an alarm state.

Category

Alarms

Usage

```
TagName.Alarm
```

Parameter

TagName
Any discrete, integer, real tag, indirect discrete and analog tag, or alarm group tag.

Data Type

Discrete (read-only)

Valid Values

0 or 1

Example

The following statement verifies if **Tag1** has an active alarm associated with it:

```
IF (Tag1.Alarm == 1) THEN
```

The body of this IF-THEN statement is processed if active alarms exist within the **PumpStation** alarm group.

```
IF (PumpStation.Alarm == 1) THEN
   MyAlarmMessage="The pumping station currently has an ALARM!";
ENDIF;
```

This dotfield is not linked to the .**Ack** or .**UnAck** dotfields. Therefore, even when an active alarm has been acknowledged, .**Alarm** remains equal to 1.

.Normal Dotfield

Returns 1 when a specified tag is not in an alarm condition. When an alarm occurs, the .**Normal dotfield** returns 0. The .**Normal** dotfield has an inverse dotfield called .**Alarm**.

Category

Alarms

Syntax

```
TagName.Normal
```

Parameter

TagName
Any discrete, integer, real tag, indirect discrete and analog tag, or alarm group tag.

Data Type

Discrete (read-only)

Valid Values

0 or 1

Example

The following IF-THEN statement runs when there are no alarms associated with the **Tag1** tag. When there is one or more alarms active for **Tag1**, the "ELSE" body runs:

```
IF (Tag1.Normal==1) THEN
   MyOperatorMessage="Tag1 is OK - No alarms associated with it";
ELSE
   MyOperatorMessage="Tag1 has one or more alarms active!";
ENDIF;
```

.AlarmDsc Dotfield

Indicates whether an alarm condition exists for a specified discrete tag or alarm group. The default value is 0. When a discrete alarm condition exists for the specified tag, it is set to a value of 1. The value remains 1 until the alarm condition no longer exists.

If the specified tag is the name of an alarm group, the **.AlarmDsc** dotfield is set to 1 if any of the tags within the group are in an active discrete alarm.

Category

Alarms

Usage

```
TagName.AlarmDsc
```

Parameter

TagName
Any discrete tag, indirect discrete tag, or alarm group.

Data Type

Discrete (read-only)

Valid Values

0 or 1

Example

The following statement verifies if Tag1 has an active discrete alarm associated with it:

```
IF (Tag1.AlarmDsc == 1) THEN
   MyAlarmMessage="The pumping station currently has an ALARM!";
ENDIF;
```

This dotfield is not linked to the **.Ack** or **.UnAck** dotfields. Therefore, even when an active alarm has been acknowledged, the **.AlarmDsc** dotfield remains equal to 1.

See Also

.Ack, .UnAck, .Alarm, .AlarmDsc, .AckDsc

.AlarmDev Dotfield

Indicates when a deviation alarm becomes active for the specified tag or alarm group. The default value is 0. When a deviation alarm condition exists for the specified tag, it is set to a value of 1. The value remains 1 until the alarm condition no longer exists.

If the specified tag is the name of an alarm group, the **.AlarmDev** dotfield is set to 1 if any of the tags within the group are in an active alarm state.

Category

Alarms

Usage

```
TagName.AlarmDev
```

Parameter

TagName
Any integer, real, indirect analog tag, or alarm group.

Data Type

Discrete (read-only)

Valid Values

0 or 1

Example

The following statement verifies if Tag1 has an active deviation alarm associated with it:

```
IF (Tag1.AlarmDev == 1) THEN
```

The body of this IF-THEN statement is processed if there are active deviation alarms within the PumpStation alarm group.

```
IF (PumpStation.AlarmDev == 1) THEN
   MyAlarmMessage="The pumping station currently has an ALARM!";
ENDIF;
```

This dotfield is not linked to the .Ack or .UnAck dotfields. Therefore, even when an active alarm has been acknowledged, this dotfield remains equal to 1.

See Also

.Ack, .UnAck, .Alarm, .AckDev

.AlarmROC Dotfield

Indicates when a rate-of-change alarm condition becomes active for the specified tag or alarm group. The default value is 0. When a rate-of-change alarm condition exists for the specified tag, it is set to a value of 1. The value remains 1 until the rate-of-change alarm condition no longer exists.

If the specified tag is the name of an alarm group, the **.AlarmROC** dotfield is set to 1 if any of the tags within the group are in a rate-of-change alarm state.

Category

Alarms

Usage

```
TagName.AlarmROC
```

Parameter

TagName
Any integer, real, indirect analog tag, or alarm group.

Data Type

Discrete (read-only)

Valid Values

0 or 1

Example

The following statement verifies if Tag1 has an active rate-of-change alarm associated with it:

```
IF (Tag1.AlarmROC == 1) THEN
```

The body of this IF-THEN statement would be processed if there were active rate-of-change alarms within the alarm group named PumpStation.

```
IF (PumpStation.AlarmROC == 1) THEN
   MyAlarmMessage="The pumping station currently has an ALARM!";
ENDIF;
```

This dotfield is not linked to the .Ack or .UnAck dotfield. Therefore, even when an active rate-of-change alarm has been acknowledged, this dotfield remains equal to 1.

See Also

.Ack, .AckROC, .Alarm, .AlarmROCEnabled, .AlarmROCDisabled

.LoStatus Dotfield

Indicates when a Low alarm condition becomes active for the specified tag or alarm group. The default value is 0. When a Low alarm condition exists for the specified tag, it is set to a value of 1. The value remains 1 until the Low alarm condition no longer exists.

This dotfield is often used in conjunction with the **.Alarm** and **.Ack** dotfields to determine the specific alarm state of a particular tag.

Category

Alarms

Usage

```
TagName.LoStatus
```

Parameter

TagName
Any integer, real, or indirect analog tag.

Data Type

Discrete (read-only)

Valid Values

0 or 1

Example

The following IF-THEN runs when the .LoStatus (low alarm condition) for the MyTag tag is equal to 1.

```
IF (MyTag.LoStatus == 1) THEN
   OperatorMessage="MyTag has gone into Low Alarm";
```

```
ENDIF;
```

See Also

.Alarm, .AlarmValue, .Ack, .LoLimit, .LoSet, .AlarmDisabled, .AlarmEnabled, .AlarmLoDisabled, .AlarmLoEnabled, .AlarmLoInhibitor

.LoLoStatus Dotfield

Indicates when a LoLo alarm condition becomes active for the specified tag or alarm group. The default value is 0. When a LoLo alarm condition exists for the specified tag, it is set to a value of 1. The value remains 1 until the LoLo alarm condition no longer exists.

This dotfield is often used in conjunction with the **.Alarm** and **.Ack** dotfields to determine the exact nature of the alarm status of a particular tag within the system.

Category

Alarms

Usage

```
TagName.LoLoStatus
```

Parameter

TagName
Any integer, real, or indirect analog tag.

Data Type

Discrete (read-only)

Valid Values

0 or 1

Example

The following IF-THEN statement runs when the .LoLoStatus (LoLo alarm limit) for the MyTag tag is equal to 1.

```
IF (MyTag.LoLoStatus == 1) THEN
   OperatorMessage="MyTag has gone into LoLo Alarm";
ENDIF;
```

See Also

.Alarm, .AlarmValue, .Ack, .LoLoLimit, .LoLoSet, .AlarmDisabled, .AlarmEnabled, .AlarmLoLoDisabled, .AlarmLoLoEnabled, .AlarmLoLoInhibitor

.HiStatus Dotfield

Indicates when a High alarm condition becomes active for the specified tag or alarm group. The default value is 0. When a High alarm condition exists for the specified tag, it is set to a value of 1. The value remains 1 until the High alarm condition no longer exists.

This dotfield is often used in conjunction with the **.Alarm** and **.Ack** dotfields to determine the specific alarm state of a tag.

Category

Alarms

Usage

```
TagName.HiStatus
```

Parameter

TagName
Any integer, real, or indirect analog tag.

Data Type

Discrete (read-only)

Valid Values

0 or 1

Example

This script calls another script to stop a pump motor output if the MotorAmps tag goes into high limit alarm status.

```
IF (MotorAmps.HiStatus == 1) THEN
    CALL PumpShutdown( );
ENDIF;
```

See Also

.Alarm, .AlarmValue, .Ack, .HiLimit, .HiSet, .AlarmDisabled, .AlarmEnabled, .AlarmHiDisabled, .AlarmHiEnabled, .AlarmHiInhibitor

.HiHiStatus Dotfield

Indicates when a HiHi alarm condition becomes active for the specified tag or alarm group. The default value is 0. When a HiHi alarm condition exists for the specified tag, it is set to a value of 1. The value remains 1 until the HiHi alarm condition no longer exists.

This dotfield is often used in conjunction with the **.Alarm** and **.Ack** dotfields to determine the specific alarm state of a tag.

Category

Alarms

Usage

```
TagName.HiHiStatus
```

Parameter

TagName
Any integer, real, or indirect analog tag.

Data Type

Discrete (read-only)

Valid Values

0 or 1

Example

The following IF-THEN statement runs when the .HiHiStatus (HiHi alarm) for the MyTag tag is 1.

```
IF (MyTag.HiHiStatus == 1) THEN
```

```
   OperatorMessage="MyTag has gone into HiHi Alarm";
ENDIF;
```

See Also

.Alarm, .AlarmValue, .Ack, .HiHiLimit, .HiHiSet, .AlarmDisabled, .AlarmEnabled, .AlarmHiHiDisabled, .AlarmHiHiEnabled, .AlarmHiHiInhibitor

.MinorDevStatus Dotfield

Indicates when a minor deviation alarm becomes active for the specified tag or alarm group. The default value is 0. When a minor deviation alarm condition exists for the specified tag, it is set to a value of 1. The value remains 1 until the minor deviation alarm condition no longer exists.

This dotfield is often used in conjunction with the **.Alarm** and **.Ack** dotfields to determine the specific alarm state of a tag.

Category

Alarms

Usage

```
TagName.MinorDevStatus
```

Parameter

TagName
Any integer, real, or indirect analog tag.

Data Type

Discrete (read-only)

Valid Values

0 or 1

Example

The following IF-THEN statement runs when the .MinorDevStatus (minor deviation alarm) for the tag MyTag is equal to 1.

```
IF (MyTag.MinorDevStatus == 1) THEN
   OperatorMessage="MyTag has gone into a Minor Deviation Alarm";
ENDIF;
```

See Also

.AckDev, .AlarmDev, .AlarmMinDevDisabled, .AlarmMinDevEnabled, .AlarmMinDevInhibitor, .MinorDevPct, .MajorDevStatus

.MajorDevStatus Dotfield

Indicates when a major deviation alarm becomes active for the specified tag or alarm group. The default value is 0. When a major deviation alarm condition exists, the specified dotfield is set to 1. The value remains 1 until the major deviation alarm condition no longer exists.

This dotfield is often used in conjunction with the **.Alarm** and **.Ack** dotfields to determine the specific alarm state of a tag.

Category

Alarms

Usage

```
TagName.MajorDevStatus
```

Parameter

TagName
Any integer, real, or indirect analog tag.

Data Type

Discrete (read-only)

Valid Values

0 or 1

Example

The following IF-THEN statement runs when the .MajorDevStatus (Major deviation alarm) for the MyTag tag is equal to 1.

```
IF (MyTag.MajorDevStatus == 1) THEN
   OperatorMessage="MyTag has gone into a Major Deviation Alarm";
ENDIF;
```

See Also

.AckDev, .AlarmDev, .AlarmMajDevDisabled, .AlarmMajDevEnabled, .AlarmMajDevInhibitor, .MajorDevPct, .MajorDevSet, .MinorDevStatus

.ROCStatus Dotfield

Indicates when a rate-of-change alarm becomes active for the specified tag or alarm group. The default value is 0. When a rate-of-change alarm condition exists for the specified tag, it is set to a value of 1. The value remains 1 until the rate-of-change alarm condition no longer exists.

This dotfield is often used in conjunction with the **.Alarm** and **.Ack** dotfields to determine the specific alarm state of a tag.

Category

Alarms

Usage

```
TagName.ROCStatus
```

Parameter

TagName
Any integer, real, or indirect analog tag.

Data Type

Discrete (read-only)

Valid Values

0 or 1

Example

The following IF-THEN statement runs when the .ROCStatus (rate-of-change alarm) for the MyTag tag is equal to 1.

```
IF (MyTag.ROCStatus == 1) THEN
   OperatorMessage="MyTag has gone into a Rate-Of-Change alarm";
ENDIF;
```

See Also

.ROCPct, .ROCSet

Reverting Alarm Status Handling to InTouch 7.1 Behavior

For InTouch 7.11 and later, the default behavior when a HiHi, LoLo, MinDev, or MajDev alarm occurs is to reset the In Alarm, ACK, and $NewAlarm status of Hi, Lo, MajDev, or MinDev alarms, respectively. For InTouch 7.1 and older versions, these alarm statuses were not affected by the occurence of a HiHi, LoLo, MinDev, or MajDev alarm.

To support legacy applications that expect Hi, Lo, MajDev, or MinDev alarms to maintain their In Alarm, ACK, and $NewAlarm status despite the occurrence of the other alarms, the InTouch.ini file can include an IT71StatusFlag parameter.

To force the alarm handling to operate as it did in InTouch 7.1 and older versions

- Enter the following line in the InTouch.ini file:

```
IT71StatusFlags=1
```

To change the alarm handling back to the default operation for InTouch 7.11 and later

- Enter the following line in the InTouch.ini file:

```
IT71StatusFlags=0
```

For more information about how to edit the InTouch.ini file to configure this and other InTouch operating parameters, see the InTouch HMI Application Management and Extension Guide.

Determining if Alarm Limits Are Set for Tags

The following dotfields indicate whether alarm limits are set for a tag while an application is running.

- *.LoLoSet Dotfield* on page 114
- *.LoSet Dotfield* on page 114
- *.HiSet Dotfield* on page 115
- *.HiHiSet Dotfield* on page 115

- *.MinorDevSet Dotfield* on page 116
- *.MajorDevSet Dotfield* on page 117
- *.ROCSet Dotfield* on page 117

.LoLoSet Dotfield

Indicates whether a LoLo alarm limit has been set for an integer or real tag.

Category

Alarms

Usage

```
TagName.LoLoSet
```

Parameter

TagName
Any integer, real, or indirect analog tag.

Data Type

Discrete (read-only)

Valid Values

0 or 1

Example

The THEN block executes if the LoLo alarm limit is set for the MyTag tag:

```
IF (MyTag.LoLoSet== 1) THEN
   MsgTag="LoLo alarm limit has been set for MyTag";
ENDIF;
```

See Also

.Alarm, .AlarmValue, .Ack, .LoLoStatus, .LoLoLimit, .AlarmDisabled, .AlarmEnabled, .AlarmLoLoDisabled, .AlarmLoLoEnabled, .AlarmLoLoInhibitor

.LoSet Dotfield

Indicates whether a Low alarm limit has been set for an integer or real tag.

Category

Alarms

Usage

```
TagName.LoSet
```

Parameter

TagName
Any integer, real, or indirect analog tag.

Data Type

Discrete (read-only)

Valid Values

0 or 1

Example

The THEN block executes if the Low alarm limit is set for the MyTag tag:

```
IF (MyTag.LoSet== 1) THEN
   MsgTag="Low alarm limit has been set for MyTag";
ENDIF;
```

See Also

.Alarm, .AlarmValue, .Ack, .LoStatus, .LoLimit, .AlarmDisabled, .AlarmEnabled, .AlarmLoDisabled, .AlarmLoEnabled, .AlarmLoInhibitor

.HiSet Dotfield

Indicates whether a High alarm limit has been set for an integer or real tag.

Category

Alarms

Usage

```
TagName.HiSet
```

Parameter

TagName
Any integer, real, or indirect analog tag.

Data Type

Discrete (read-only)

Valid Values

0 or 1

Example

The THEN block executes if the High alarm limit is set for the MyTag tag:

```
IF (MyTag.HiSet== 1) THEN
   MsgTag="High alarm limit has been set for MyTag";
ENDIF;
```

See Also

.Alarm, .AlarmValue, .Ack, .HiHiStatus, .HiHiLimit, .AlarmDisabled, .AlarmEnabled, .AlarmHiHiDisabled, .AlarmHiHiEnabled, .AlarmHiHiInhibitor

.HiHiSet Dotfield

Indicates whether a HiHi alarm limit has been set for an integer or real tag.

Category

Alarms

Usage

```
TagName.HiHiSet
```

Parameter

TagName
Any integer, real, or indirect analog tag.

Data Type

Discrete (read-only)

Valid Values

0 or 1

Example

The THEN block executes if the HiHi alarm limit is set for the MyTag tag:

```
IF (MyTag.HiHiSet== 1) THEN
   MsgTag="HiHi alarm limit has been set for MyTag";
ENDIF;
```

See Also

.Alarm, .AlarmValue, .Ack, .HiHiStatus, .HiHiLimit, .AlarmDisabled, .AlarmEnabled, .AlarmHiHiDisabled, .AlarmHiHiEnabled, .AlarmHiHiInhibitor

.MinorDevSet Dotfield

Indicates whether a minor deviation alarm limit has been set for an integer or real tag.

Category

Alarms

Usage

```
TagName.MinorDevSet
```

Parameter

TagName
Any integer, real, or indirect analog tag.

Data Type

Discrete (read-only)

Valid Values

0 or 1

Example

The THEN block executes if the minor deviation percentage alarm limit is set for the MyTag tag:

```
IF (MyTag.MinorDevSet== 1) THEN
```

```
   MsgTag="Minor deviation alarm limit has been set for MyTag";
ENDIF;
```

See Also

.AckDev, .AlarmDev, .AlarmMinDevDisabled, .AlarmMinDevEnabled, .AlarmMinDevInhibitor, .MinorDevPct, .MinorDevStatus

.MajorDevSet Dotfield

Indicates whether a major deviation alarm limit has been set for an integer or real tag.

Category

Alarms

Usage

```
TagName.MajorDevSet
```

Parameter

TagName
Any integer, real, or indirect analog tag.

Data Type

Discrete (read-only)

Valid Values

0 or 1

Example

The THEN block executes if the major deviation percentage alarm limit is set for the MyTag tag:

```
IF (MyTag.MajorDevSet== 1) THEN
   MsgTag="Major deviation alarm limit has been set for MyTag";
ENDIF;
```

See Also

.AckDev, .AlarmDev, .AlarmMajDevDisabled, .AlarmMajDevEnabled, .AlarmMajDevInhibitor, .MajorDevPct, .MajorDevStatus

.ROCSet Dotfield

Indicates whether a rate-of-change alarm limit has been set for an integer or real tag.

Category

Alarms

Usage

```
TagName.ROCSet
```

Parameter

TagName
Any integer, real, or indirect analog tag.

Data Type

Discrete (read-only)

Valid Values

0 or 1

Example

The THEN block executes if the rate-of-change alarm limit is set for the MyTag tag:

```
IF (MyTag.ROCSet == 1) THEN
   MsgTag="Rate-of-change alarm limit has been set for MyTag";
ENDIF;
```

See Also

.Alarm, .Ack, .LoLimit, .LoLoLimit, .HiHiLimit, .HiLimit, .HiSet, .LoSet, .LoLoSet, .HiStatus, .HiHiStatus, .ROCPct, .ROCStatus

Enabling and Disabling Alarms for a Tag or Alarm Group

The InTouch HMI provides a set of dotfields that can enable or disable alarms that are set for a tag while an application is running.

Enabling/Disabling All Alarms

The **.AlarmEnabled** and **.AlarmDisabled** dotfields enable or disable alarms for a tag or alarm group based upon their respective values. The alarm states associated with both dotfields are the inverse of each other. In the case of **.AlarmEnabled**, a value of 1 enables alarms for a tag or alarm group. An **.AlarmDisabled** value of 1 disables alarms for a tag or alarm group.

When either dotfield enables alarms for an alarm group, all tags that belong to the group have alarming enabled. When either dotfield disables alarms, all events and alarms are ignored. The alarms are not stored in alarm memory, nor are they written to disk.

.AlarmEnabled Dotfield

Enables or disables alarms for a tag or an alarm group.

Category

Alarms

Usage

```
TagName.AlarmEnabled
```

Parameter

TagName
Any discrete, integer, real, indirect discrete, indirect analog tag, or alarm group.

Remarks

When **.AlarmEnabled** is set to 0, all events and alarms are ignored. They are not stored in alarm memory, nor are they written to disk. It is very important to re-enable events/alarms, whenever possible, to avoid data loss.

When the specified tag is an alarm group, all alarms associated with the tags within the specified alarm group are enabled.

Data Type

Discrete (read/write)

Valid Values

0 = Disable alarms

1 = Enable alarms (default)

Example

The following example disables the alarms of the Tag1 tag:

```
Tag1.AlarmEnabled=0;
```

See Also

.AlarmDisabled

.AlarmDisabled Dotfield

Enables or disables alarms for a tag or an alarm group.

Category

Alarms

Usage

```
TagName.AlarmDisabled
```

Parameter

TagName
Any discrete, integer, real, indirect discrete, indirect analog tag, or alarm group.

Remarks

When .AlarmDisabled is set to 1, all events and alarms are ignored. They are not stored in alarm memory, nor are they written to disk. It is very important to re-enable events/alarms, whenever possible, to avoid data loss.

When the specified tag is an alarm group, all alarms associated with the tags within the specified alarm group are disabled.

This is the opposite of the .AlarmEnabled dotfield.

Example

The following example enables the alarms of the Tag1 tag.

```
Tag1.AlarmDisabled=0;
```

See Also

.AlarmEnabled

Enabling/Disabling LoLo Alarms

The **.AlarmLoLoEnabled** and **.AlarmLoLoDisabled** dotfields enable or disable LoLo alarms for a tag or alarm group based upon their respective values. The LoLo alarm states associated with both dotfields are the inverse of each other. In the case of **.AlarmLoLoEnabled**, a value of 1 enables LoLo alarms for a tag or alarm group. An **.AlarmLoLoDisabled** value of 1 disables LoLo alarms for a tag or alarm group.

When either dotfield enables LoLo alarms for an alarm group, all tags that belong to the group have LoLo alarms enabled. When either dotfield disables LoLo alarms, all LoLo alarms are ignored. The alarms are not stored in alarm memory, nor are they written to disk.

.AlarmLoLoEnabled Dotfield

Enables or disables LoLo condition events and alarms.

Category

Alarms

Usage

```
TagName.AlarmLoLoEnabled
```

Parameter

TagName
Any integer, real, indirect analog tag, or alarm group.

Remarks

When .AlarmLoLoEnabled is set to 0, all LoLo condition events and alarms are ignored. They are not stored in alarm memory, nor are they written to disk. It is very important to re-enable events/alarms, whenever possible, to avoid data loss.

Data Type

Discrete (read/write)

Valid Values

0 = Disable alarms

1 = Enable alarms (default)

Example

The following example disables the LoLo alarms of the Tag1 tag:

```
Tag1.AlarmLoLoEnabled=0;
```

See Also

.AlarmDisabled, .AlarmEnabled, .AlarmLoLoDisabled

.AlarmLoLoDisabled Dotfield

Enables or disables LoLo condition events and alarms.

Category

Alarms

Usage

```
TagName.AlarmLoLoDisabled
```

Parameter

TagName
Any integer, real, indirect analog tag, or alarm group.

Remarks

When .AlarmLoLoDisabled is set to 1, all LoLo condition events and alarms are ignored. They are not stored in alarm memory, nor are they written to disk. It is very important to re-enable events/alarms, whenever possible, to avoid data loss.

Data Type

Discrete (read/write)

Valid Values

1 = Disable alarms

0 = Enable alarms (default)

Example

The following example enables LoLo alarms of the Tag2 tag:

```
Tag2.AlarmLoLoDisabled=0;
```

See Also

.AlarmDisabled, .AlarmEnabled, .AlarmLoLoEnabled

Enabling/Disabling Low Alarms

The **.AlarmLoEnabled** and **.AlarmLoDisabled** dotfields enable or disable Low alarms for a tag or alarm group based upon their respective values. The Low alarm states associated with both dotfields are the inverse of each other. In the case of **.AlarmLoEnabled**, a value of 1 enables Low alarms for a tag or alarm group. An **.AlarmLoDisabled** value of 1 disables Low alarms for a tag or alarm group.

When either dotfield enables Low alarms for an alarm group, all tags that belong to the group have Low alarms enabled. When either dotfield disables Low alarms, all Low alarms are ignored. The alarms are not stored in alarm memory, nor are they written to disk.

.AlarmLoEnabled Dotfield

Enables or disables Low condition events and alarms.

Category

Alarms

Usage

```
TagName.AlarmLoEnabled
```

Parameter

TagName
Any integer, real, indirect analog tag, or alarm group.

Remarks

When .AlarmLoEnabled is set to 0, all Low condition events and alarms are ignored. They are not stored in alarm memory, nor are they written to disk. It is very important to re-enable events/alarms, whenever possible, to avoid data loss.

Data Type

Discrete (read/write)

Valid Values

0 = Disable alarms

1 = Enable alarms (default)

Example

The following example disables the Low alarms of the Tag1 tag:

```
Tag1.AlarmLoEnabled=0;
```

See Also

.AlarmDisabled, .AlarmEnabled, .AlarmLoDisabled

.AlarmLoDisabled Dotfield

Enables or disables Low condition events and alarms.

Category

Alarms

Usage

```
TagName.AlarmLoDisabled
```

Parameter

TagName
Any integer, real, indirect analog tag, or alarm group.

Remarks

When .AlarmLoDisabled is set to 1, all Low condition events and alarms are ignored. They are not stored in alarm memory, nor are they written to disk. It is very important to re-enable events/alarms, whenever possible, to avoid data loss.

Data Type

Discrete (read/write)

Valid Values

1 = Disable alarms

0 = Enable alarms (default)

Example

The following example enables Low alarms of the Tag2 tag:

```
Tag2.AlarmLoDisabled=0;
```

See Also

.AlarmDisabled, .AlarmEnabled, .AlarmLoEnabled

Enabling/Disabling High Alarms

The **.AlarmHiEnabled** and **.AlarmHiDisabled** dotfields enable or disable High alarms for a tag or alarm group based upon their respective values. The High alarm states associated with both dotfields are the inverse of each other. In the case of **.AlarmHiEnabled**, a value of 1 enables High alarms for a tag or alarm group. An **.AlarmHiDisabled** value of 1 disables High alarms for a tag or alarm group.

When either dotfield enables High alarms for an alarm group, all tags that belong to the group have High alarms enabled. When either dotfield disables High alarms, all High alarms are ignored. The High alarms are not stored in alarm memory, nor are they written to disk.

.AlarmHiEnabled Dotfield

Enables or disables High condition events and alarms.

Category

Alarms

Usage

```
TagName.AlarmHiEnabled
```

Parameter

TagName
Any integer, real, indirect analog tag, or alarm group.

Remarks

When .AlarmHiEnabled is set to 0, all High condition events and alarms are ignored. They are not stored in alarm memory, nor are they written to disk. It is very important to re-enable events/alarms, whenever possible, to avoid data loss.

This is the opposite of the .AlarmHiDisabled dotfield.

Data Type

Discrete (read/write)

Valid Values

0 = Disable alarms

1 = Enable alarms (default)

Example

The following example disables the High alarms of the tag Tag1:

```
Tag1.AlarmHiEnabled=0;
```

See Also

.AlarmHiDisabled, .AlarmEnabled

.AlarmHiDisabled Dotfield

Enables or disables High condition events and alarms.

Category

Alarms

Usage

```
TagName.AlarmHiDisabled
```

Parameter

TagName
Any integer, real, indirect analog tag, or alarm group.

Remarks

When .AlarmHiDisabled is set to 1, all High condition events and alarms are ignored. They are not stored in alarm memory, nor are they written to disk. It is very important to re-enable events/alarms, whenever possible, to avoid data loss.

This is the opposite of the .AlarmHiEnabled dotfield.

Data Type

Discrete (read/write)

Valid Values

1 = Disable alarms

0 = Enable alarms (default)

Example

The following example enables High alarms of the Tag2 tag:

```
Tag2.AlarmHiDisabled=0;
```

See Also

.AlarmHiEnabled, .AlarmDisabled

Enabling/Disabling HiHi Alarms

The **.AlarmHiHiEnabled** and **.AlarmHiHiDisabled** dotfields enable or disable HiHi alarms for a tag or alarm group based upon their respective values. The HiHi alarm states associated with both dotfields are the inverse of each other. In the case of **.AlarmHiHiEnabled**, a value of 1 enables HiHi alarms for a tag or alarm group. An **.AlarmHiHiDisabled** value of 1 disables HiHi alarms for a tag or alarm group.

When either dotfield enables HiHi alarms for an alarm group, all tags that belong to the group have HiHi alarms enabled. When either dotfield disables HiHi alarms, all HiHi alarms are ignored. The HiHi alarms are not stored in alarm memory, nor are they written to disk.

.AlarmHiHiEnabled Dotfield

Enables and/or disables HiHi condition events and alarms.

Category

Alarms

Usage

```
TagName.AlarmHiHiEnabled
```

Parameter

TagName
Any integer, real, indirect analog tag, or alarm group.

Remarks

When .AlarmHiHiEnabled is set to 0, all HiHi condition events and alarms are ignored. They are not stored in alarm memory, nor are they written to disk. It is very important to re-enable events/alarms, whenever possible, to avoid data loss.

Data Type

Discrete (read/write)

Valid Values

0 = Disable alarms

1= Enable alarms (default)

Example

The following example disables the HiHi alarms of the Tag1 tag:

```
Tag1.AlarmHiHiEnabled=0;
```

See Also

.AlarmHiHiDisabled, .AlarmEnabled

.AlarmHiHiDisabled Dotfield

Enables or disables HiHi condition events and alarms.

Category

Alarms

Usage

```
TagName.AlarmHiHiDisabled
```

Parameter

TagName
Any integer, real, indirect analog tag, or alarm group.

Remarks

When .AlarmHiHiDisabled is set to 1, all HiHi condition events and alarms are ignored. They are not stored in alarm memory, nor are they written to disk. It is very important to re-enable events/alarms, whenever possible, to avoid data loss.

This is the opposite of the .AlarmHiHiEnabled dotfield.

Data Type

Discrete (read/write)

Valid Values

1 = Disable alarms

0 = Enable alarms (default)

Example

The following example enables HiHi alarms of the Tag2 tag:

```
Tag2.AlarmHiHiDisabled=0;
```

See Also

.AlarmHiHiEnabled, .AlarmDisabled

Enabling/Disabling Discrete Alarms

The **.AlarmDscEnabled** and **.AlarmDscDisabled** dotfields enable or disable discrete alarms for a tag or alarm group based upon their respective values. The discrete alarm states associated with both dotfields are the inverse of each other. In the case of **.AlarmDscEnabled**, a value of 1 enables discrete alarms for a tag or alarm group. An **.AlarmDscDisabled** value of 1 disables discrete alarms for a tag or alarm group.

When either dotfield enables discrete alarms for an alarm group, all tags that belong to the group have discrete alarms enabled. When either dotfield disables discrete alarms, all discrete alarms are ignored. The discrete alarms are not stored in alarm memory, nor are they written to disk.

.AlarmDscEnabled Dotfield

Indicates indicates whether or not the tag can generate discrete alarms.

Category

Alarms

Usage

```
TagName.AlarmDscEnabled
```

Parameter

TagName
Any discrete or indirect discrete tag or alarm group.

Remarks

When .AlarmDscEnabled is set to 0, all discrete condition alarms and events are ignored. They are not stored in alarm memory, nor are they written to a disk. It is very important to re-enable events/alarms, whenever possible, to avoid data loss.

This is the opposite of the .AlarmDscDisabled dotfield.

Data Type

Discrete (read/write)

Valid Values

0 = Disable alarms

1= Enable alarms (default)

Example

The following example disables the discrete alarms of the Tag1 tag:

```
Tag1.AlarmDscEnabled=0;
```

See Also

.AlarmDscDisabled

.AlarmDscDisabled Dotfield

Indicates whether or not the tag can generate discrete alarms.

Category

Alarms

Usage

```
TagName.AlarmDscDisabled
```

Parameter

TagName
Any discrete or indirect discrete tag or alarm group.

Remarks

When .AlarmDscDisabled is set to 1, all discrete condition alarms and events are ignored. They are not stored in alarm memory, nor are they written to a disk. It is very important to re-enable events/alarms, whenever possible, to avoid data loss.

This is the opposite of the .AlarmDscEnabled dotfield.

Data Type

Discrete (read/write)

Valid Values

1 = Disable alarms

0 = Enable alarms (default)

Example

The following example enables discrete alarms of the Tag2 tag:

```
Tag2.AlarmDscDisabled=0;
```

Enabling/Disabling Minor Deviation Alarms

The **.AlarmMinDevEnabled** and **.AlarmMinDevDisabled** dotfields enable or disable minor deviation alarms for a tag or alarm group based upon their respective values. The minor deviation alarm states associated with both dotfields are the inverse of each other. In the case of **.AlarmMinDevEnabled**, a value of 1 enables minor deviation alarms for a tag or alarm group. An **.AlarmMinDevDisabled** value of 1 disables minor deviation alarms for a tag or alarm group.

When either dotfield enables minor deviation alarms for an alarm group, all tags that belong to the group have minor deviation alarms enabled. When either dotfield disables minor deviation alarms, all minor deviation alarms are ignored. The minor deviation alarms are not stored in alarm memory, nor are they written to disk.

.AlarmMinDevEnabled Dotfield

Enables or disables minor deviation events and alarms.

Category

Alarms

Usage

```
TagName.AlarmMinDevEnabled
```

Parameter

TagName
Any integer, real, indirect analog tag, or alarm group.

Remarks

When **.AlarmMinDevEnabled** is set to 0, all minor deviation events and alarms are ignored. They are not stored in alarm memory, nor are they written to disk. It is very important to re-enable events/alarms, whenever possible, to avoid data loss.

Data Type

Discrete (read/write)

Valid Values

0 = Disable alarms

1= Enable alarms (default)

Example

The following example disables the minor deviation alarms of the Tag1 tag:

```
Tag1.AlarmMinDevEnabled=0;
```

See Also

.AlarmDisabled, .AlarmEnabled, .AlarmMinDevDisabled

.AlarmMinDevDisabled Dotfield

Enables or disables minor deviation events and alarms.

Category

Alarms

Usage

```
TagName.AlarmMinDevDisabled
```

Parameter

TagName
Any integer, real, or indirect analog tag, or alarm group.

Remarks

When **.AlarmMinDevDisabled** is set to 1, all minor deviation events and alarms are ignored. They are not stored in alarm memory, nor are they written to disk. It is very important to re-enable events/alarms, whenever possible, to avoid data loss.

This is the opposite of the **.AlarmMinDevEnabled** dotfield.

Data Type

Discrete (read/write)

Valid Values

1 = Disable alarms

0 = Enable alarms (default)

Example

The following example enables minor deviation alarms of the Tag2 tag:

```
Tag2.AlarmMinDevDisabled=0;
```

See Also

.AlarmDisabled, .AlarmEnabled, .AlarmMinDevEnabled

Enabling/Disabling Major Deviation Alarms

The **.AlarmMajDevEnabled** and **.AlarmMajDevDisabled** dotfields enable or disable major deviation alarms for a tag or alarm group based upon their respective values. The major deviation alarm states associated with both dotfields are the inverse of each other. In the case of **.AlarmMajDevEnabled**, a value of 1 enables major deviation alarms for a tag or alarm group. An **.AlarmMajDevDisabled** value of 1 disables major deviation alarms for a tag or alarm group.

When either dotfield enables major deviation alarms for an alarm group, all tags that belong to the group have major deviation alarms enabled. When either dotfield disables major deviation alarms, all major deviation alarms are ignored. The major deviation alarms are not stored in alarm memory, nor are they written to disk.

.AlarmMajDevEnabled Dotfield

Enables or disables major deviation events and alarms.

Category

Alarms

Usage

```
TagName.AlarmMajDevEnabled
```

Parameter

TagName
Any integer, real, indirect analog tag, or alarm group.

Remarks

When .AlarmMajDevEnabled is set to 0, all major deviation events and alarms are ignored. They are not stored in alarm memory, nor are they written to disk. It is very important to re-enable events/alarms, whenever possible, to avoid data loss.

This is the opposite of the .AlarmMajDevDisabled dotfield.

Data Type

Discrete (read/write)

Valid Values

0 = Disable alarms

1= Enable alarms (default)

Example

The following example disables major deviation alarms of the Tag1 tag:

```
Tag1.AlarmMajDevEnabled=0;
```

See Also

.AlarmDisabled, .AlarmEnabled, .AlarmMajDevDisabled

.AlarmMajDevDisabled Dotfield

Enables or disables major deviation events and alarms.

Category

Alarms

Usage

```
TagName.AlarmMajDevDisabled
```

Parameter

TagName
Any integer, real, indirect analog tag, or alarm group.

Remarks

When .AlarmMajDevDisabled is set to 1, all major deviation events and alarms are ignored. They are not stored in alarm memory, nor are they written to disk. It is very important to re-enable events/alarms, whenever possible, to avoid data loss.

This is the opposite of the .AlarmMajDevEnabled dotfield.

Data Type

Discrete (read/write)

Valid Values

1 = Disable alarms

0 = Enable alarms (default)

Example

The following example enables major deviation alarms of the Tag2 tag:

```
Tag2.AlarmMajDevDisabled=0;
```

See Also

.AlarmDisabled, .AlarmEnabled, .AlarmMajDevEnabled

Enabling/Disabling Rate-Of-Change Alarms

The **.AlarmROCEnabled** and **.AlarmROCDisabled** dotfields enable or disable rate-of-change alarms for a tag or alarm group based upon their respective values. The rate-of-change alarm states associated with both dotfields are the inverse of each other. In the case of **.AlarmROCEnabled**, a value of 1 enables rate-of-change alarms for a tag or alarm group. An **.AlarmROCDisabled** value of 1 disables rate-of-change alarms for a tag or alarm group.

When either dotfield enables rate-of-change alarms for an alarm group, all tags that belong to the group have rate-of-change alarms enabled. When either dotfield disables rate-of-change alarms, all rate-of-change alarms are ignored. The rate-of-change alarms are not stored in alarm memory, nor are they written to disk.

.AlarmROCEnabled Dotfield

Enables or disables rate-of-change events and alarms.

Category

Alarms

Usage

```
TagName.AlarmROCEnabled
```

Parameter

TagName
Any integer, real, indirect analog tag, or alarm group.

Remarks

When .AlarmROCEnabled is set to 0, all rate-of-change condition events and alarms are ignored. They are not stored in alarm memory, nor are they written to disk. It is very important to re-enable events/alarms, whenever possible, to avoid data loss.

This is the opposite of the .AlarmROCDisabled dotfield.

Data Type

Discrete (read/write)

Valid Values

0 = Disable alarms

1 = Enable alarms (default)

Example

The following example disables the rate-of-change alarms of the Tag1 tag:

```
Tag1.AlarmROCEnabled=0;
```

See Also

.AlarmDisabled, .AlarmEnabled, .AlarmROCDisabled

.AlarmROCDisabled Dotfield

Disables or enables rate-of-change events and alarms.

Category

Alarms

Usage

```
TagName.AlarmROCDisabled
```

Parameter

TagName
Any integer, real, indirect analog tag, or alarm group.

Remarks

When .AlarmROCDisabled is set to 1, all rate-of-change events and alarms are ignored. They are not stored in alarm memory, nor are they written to disk. It is very important to re-enable events/alarms, whenever possible, to avoid data loss.

This is the opposite of the .AlarmROCEnabled property.

Data Type

Discrete (read/write)

Valid Values

1= Disable alarms

0= Enable alarms (default)

Example

The following example enables rate-of-change alarms of the Tag2 tag:

```
Tag2.AlarmROCDisabled=0;
```

See Also

.AlarmDisabled, .AlarmEnabled, .AlarmROCEnabled

Changing a Tag's Alarm Limits

Use the following dotfields to change a tag's alarm limits while an application is running. You can change the limit for LoLo, Low, High, and HiHi alarms, the major and minor deviation percentage and target, and the rate-of-change deviation.

- *.LoLoLimit Dotfield* on page 133
- *.LoLimit Dotfield* on page 134
- *.HiLimit Dotfield* on page 134
- *.HiHiLimit Dotfield* on page 135
- *.MinorDevPct Dotfield* on page 136
- *.MajorDevPct Dotfield* on page 136
- *.DevTarget Dotfield* on page 137
- *.ROCPct Dotfield* on page 138

.LoLoLimit Dotfield

Changes a tag's LoLo alarm limit.

Category

Alarms

Usage

```
TagName.LoLoLimit
```

Parameter

TagName
Any integer, real, or indirect analog tag.

Remarks

If you want to continue to use the run-time value of this dotfield after an intentional or accidental shutdown of WindowViewer, select the **Retentive Parameters** option in the Tagname Dictionary.

Data Type

Analog (read/write)

Valid Values

Must be in value range configured for the specified tag.

Example

This statement decreases the LoLo alarm limit for the MyTag1 tag by a value of 10:

```
MyTag1.LoLoLimit=MyTag1.LoLoLimit - 10;
```

See Also

.Alarm, .AlarmValue, .Ack, .LoLoStatus, .LoLoSet, .AlarmDisabled, .AlarmEnabled, .AlarmLoLoDisabled, .AlarmLoLoEnabled, .AlarmLoLoInhibitor

.LoLimit Dotfield

Changes a tag’s Low alarm limit.

Category

Alarms

Usage

```
Tagname.LoLimit
```

Parameter

Tagname
Any integer, real, or indirect analog tag.

Remarks

If you want to continue to use the run-time value of this dotfield after an intentional or accidental shutdown of WindowViewer, select the **Retentive Parameters** option in the Tagname Dictionary.

Data Type

Analog (read/write)

Valid Values

Must be in value range configured for the specified tag.

Example

This statement decreases the Low alarm limit for the MyTag tag by a value of 10:

```
MyTag.LoLimit=MyTag.LoLimit - 10;
```

See Also

.Alarm, .AlarmValue, .Ack, .LoStatus, .LoSet, .AlarmDisabled, .AlarmEnabled, .AlarmLoDisabled, .AlarmLoEnabled, .AlarmLoInhibitor

.HiLimit Dotfield

Changes a tag’s High alarm limit.

Category

Alarms

Usage

```
TagName.HiLimit
```

Parameter

TagName
Any integer, real, or indirect analog tag.

Remarks

If you want to continue to use the run-time value of this dotfield after an intentional or accidental shutdown of WindowViewer, select the **Retentive Parameters** option in the Tagname Dictionary.

Data Type

Analog (read/write)

Valid Values

Must be in value range configured for the specified tag.

Example

This statement sets the High limit alarm for the **PumpTemp** tag to 212:

```
PumpTemp.HiLimit = 212;
```

See Also

.Alarm, .AlarmValue, .Ack, .HiHiStatus, .HiHiSet, .AlarmDisabled, .AlarmEnabled, .AlarmHiHiDisabled, .AlarmHiHiEnabled, .AlarmHiHiInhibitor

.HiHiLimit Dotfield

Changes a tag's HiHi alarm limit.

Category

Alarms

Usage

```
TagName.HiHiLimit
```

Parameter

TagName
Any integer, real, or indirect analog tag.

Remarks

If you want to continue to use the run-time value of this dotfield after an intentional or accidental shutdown of WindowViewer, select the **Retentive Parameters** option in the Tagname Dictionary.

Data Type

Analog (read/write)

Valid Values

Must be in value range configured for the specified tag.

Example

The following statement increases the HiHi alarm limit for the MyTag tag by a value of 5:

```
MyTag.HiHiLimit=MyTag.HiHiLimit + 5;
```

See Also

.Alarm, .AlarmValue, .Ack, .HiHiStatus, .HiHiSet, .AlarmDisabled, .AlarmEnabled, .AlarmHiHiDisabled, .AlarmHiHiEnabled, .AlarmHiHiInhibitor

.MinorDevPct Dotfield

Changes a tag's minor deviation alarm limit.

Category

Alarms

Usage

```
TagName.MinorDevPct
```

Parameter

TagName
Any integer, real, or indirect analog tag.

Remarks

If you want to continue to use the run-time value of this dotfield after an intentional or accidental shutdown of WindowViewer, select the **Retentive Parameters** option in the Tagname Dictionary.

Data Type

Real (read/write)

Valid Values

0 to 100

Example

The following statement sets the minor deviation limit property for the MyTag tag to 25 percent:

```
MyTag.MinorDevPct=25;
```

See Also

.AckDev, .AlarmDev, .AlarmMinDevDisabled, .AlarmMinDevEnabled, .AlarmMinDevInhibitor, .MinorDevSet, .MinorDevStatus

.MajorDevPct Dotfield

Changes a tag's major alarm deviation limit.

Category

Alarms

Usage

```
TagName.MajorDevPct
```

Parameter

TagName
Any integer, real, or indirect analog tag.

Remarks

If you want to continue to use the run-time value of this dotfield after an intentional or accidental shutdown of WindowViewer, select the **Retentive Parameters** option in the Tagname Dictionary.

Data Type

Real (read/write)

Valid Values

0 to 100

Example

The following statement sets the major deviation limit property for the MyTag tag to 25 percent:

```
MyTag.MajorDevPct=25;
```

See Also

.AckDev, .AlarmDev, .AlarmMajDevDisabled, .AlarmMajDevEnabled, .AlarmMajDevInhibitor, .MajorDevSet, .MajorDevStatus

.DevTarget Dotfield

Changes the target for a tag’s minor and major deviation alarms.

Category

Alarms

Usage

```
TagName.DevTarget
```

Parameter

TagName
Any integer, real, or indirect analog tag.

Remarks

If you want to continue to use the run-time value of this dotfield after an intentional or accidental shutdown of WindowViewer, select the **Retentive Parameters** option in the Tagname Dictionary.

Data Type

Real (read/write)

Valid Values

Must be in value range specified for the tag

Example

The following statement sets the deviation target for the MyTag tag to 500;

```
MyTag.DevTarget=500;
```

See Also

.AckDev, .AlarmDev, .AlarmMajDevDisabled, .AlarmMajDevEnabled, .AlarmMajDevInhibitor, .MajorDevSet, .MajorDevStatus

.ROCPct Dotfield

Changes a tag's rate-of-change alarm limit.

Category

Alarms

Usage

```
TagName.ROCPct
```

Parameter

TagName
Any integer, real, or indirect analog tag.

Remarks

The dotfield corresponds directly to the same field configured within the alarm section of the Tagname Dictionary.

Data Type

Integer (read/write)

Valid Values

0 to 100

Example

The following statement sets the rate-of-change alarm limit of the MyTag tag to 25 percent:

```
MyTag.ROCPct=25;
```

See Also

.ROCStatus, .ROCSet

Changing a Tag's Alarm Deadbands

Use the following dotfields to change a tag's alarm deadband range while an application is running:

- *.AlarmValDeadband Dotfield* on page 138
- *.AlarmDevDeadband Dotfield* on page 139

.AlarmValDeadband Dotfield

Changes a tag's deadband value while an InTouch application is running.

Category

Alarms

Usage

```
TagName.AlarmValDeadband
```

Parameter

TagName
Any integer, real, or indirect analog tag.

Remarks

If you want to continue to use the run-time value of this dotfield after an intentional or accidental shutdown of WindowViewer, select the **Retentive Parameters** option in the Tagname Dictionary.

Data Type

Analog (read/write)

Valid Values

Must be in value range specified for the tag

Example

The following statement changes the deadband for Tag1 tag to a value of 25:

```
Tag1.AlarmValDeadband=25;
```

See Also

.AlarmDevDeadband

.AlarmDevDeadband Dotfield

Changes a tag's deviation percentage deadband for both minor and major deviation alarms.

Category

Alarms

Usage

```
TagName.AlarmDevDeadband
```

Parameter

TagName
Any integer, real, or indirect analog tag.

Remarks

If you want to continue to use the run-time value of this dotfield after an intentional or accidental shutdown of WindowViewer, select the **Retentive Parameters** option in the Tagname Dictionary.

Data Type

Integer (read/write)

Valid Values

0 to 100

Example

The following statement changes the deviation deadband percentage to 25 percent:

```
tag.AlarmDevDeadband=25;
```

See Also

.AlarmValDeadband, .AlarmDev

Changing the Alarm Comment Associated with a Tag

The **.AlarmComment** dotfield returns a comment text string that is associated with the alarm of a tag or alarm group.

.AlarmComment Dotfields

Returns a comment text string that is associated with the alarm of a tag or alarm group. By default, it is empty in a new application.

Associating User-Defined Information with an Alarm Instance

You can attach three items to an alarm record: two numbers and a string. Use the following dotfields to add information to an alarm record.

- *.AlarmUserDefNumX Dotfields* on page 140
- *.AlarmUserDefStr Dotfield* on page 141

.AlarmUserDefNumX Dotfields

To simplify setting user values, you can set these dotfields on an alarm group as well as on a specific tag. For example, InBatch could set the batch number in .AlarmUserDefNum1 all the way up at the $System alarm group, causing all alarms to have the batch number attached.

The .AlarmUserDefNum1 and .AlarmUserDefNum2 dotfields correspond to the User1 and User2 columns in the Alarm Viewer control, respectively.

If you set .AlarmUserDefNum1 on an alarm group, it applies to all alarms in that group and any of its sub-groups. You can also specifically set the value of .AlarmUserDefNum1 on a tag. In this case, it applies only to that tag and overwrites any setting of .AlarmUserDefNum1 in the tag's alarm group.

Category

Alarms

Usage

```
TagName.AlarmUserDefNum1
TagName.AlarmUserDefNum2
```

Parameter

TagName
Any discrete, integer, real, indirect discrete, indirect analog tag, or alarm group.

Remarks

This user-defined dotfield is enabled for a wide range of tags, particularly discrete tags, analog tags, and alarm groups (whether or not they have alarms defined). You can leave these items unset, set all of them, or set only some of them for any individual tag, group, or parent group.

The value of this dotfield is attached to the alarm, but ONLY if a value has been set, for example, by a script or a POKE.

Data Types

Analog (read/write)

Valid Values

Any real value and not set (default)

Examples

The following examples use constant values. However, you can use InTouch QuickScripts to copy the value of another tag to any of these user-defined fields. You can also use PtAcc to set or inspect them, or use InTouch as an I/O Server to get or set the values.

```
$System.AlarmUserDefNum1 = 4;
GroupA.AlarmUserDefNum1 = 27649;
```

In concept, the lowest-level setting prevails, when an alarm notification is sent to the Distributed Alarm system. That is, if the tag has .AlarmUserDefNum1 set to some value, the alarm record should be populated using that setting. However, if the tag doesn't have one, WindowViewer checks if the tag's alarm group has one, and so on up the line until the root group $System is reached. If no setting is found at any level, the entry in the alarm record will be left empty (zero for numbers, an empty string for strings).

Note: This hierarchical search is handled independently for each item. Therefore, if a tag has a setting for .AlarmUserDefNum2 but not for .AlarmUserDefNum1, but its parent group has a setting for .AlarmUserDefNum1, the tag will inherit the setting for .AlarmUserDefNum1 from its parent group.

See Also

.AlarmUserDefStr

.AlarmUserDefStr Dotfield

The **.AlarmUserDefStr** dotfield is attached to the information recorded for each alarm by Alarm DB Logger in the alarm database. The .AlarmUserDefStr dotfield corresponds to database field User3. You can use the "user-defined" columns in a SELECT statement to select particular collections of alarms for database operations. For example, if $System.AlarmUserDefStr is set to a Batch String and is changed each time the Batch changes, a selection involving the database field User3 can be used to select alarms for particular batches.

Category

Alarms

Usage

```
Tagname.AlarmUserDefStr
```

Parameter

Tagname
Any discrete, integer, real, indirect discrete, or indirect analog tag, or alarm group.

Remarks

This user-defined dotfield is enabled for a wide range of tags, particularly discrete tags, analog tags, and alarm groups (whether or not they have alarms defined). You can leave these items unset, set all of them, or set only some of them for any individual tag, group, or parent group.

The value of this dotfield is attached to the alarm, but ONLY if a value has been set, for example, using a script or a POKE.

Data Type

Message (read/write)

Valid Values

NULL and any valid string

Examples

This example uses a constant value. However, you can use InTouch QuickScripts to copy the value of another tag to any of these user-defined fields. You can also use PtAcc to set or inspect them, or use InTouch as an I/O Server to get or set the values.

```
Tag04.AlarmUserDefStr = "Joe";
```

In concept, the lowest-level setting prevails, when an alarm notification is sent to the Distributed Alarm system. That is, if the tag has .AlarmUserDefStr set to some value, the alarm record should be populated using that setting. However, if the tag doesn't have one, WindowViewer will check if the tag's alarm group has one, and so on up the line until the root group $System is reached. If no setting is found at any level, the entry in the alarm record will be left empty (zero for numbers, an empty string for strings).

Also note that this hierarchical search is handled independently for each item. Therefore, if a tag has a setting for .AlarmUserDefNum1 but not for .AlarmUserDefStr, but its parent group has a setting for .AlarmUserDefStr, that setting is used in the alarm record.

See Also

.AlarmUserDefNumX

Determining the Inhibitor Tag of a Tag or Alarm Group

Use the following dotfields to determine the inhibitor tag of various types of alarms.

- *.AlarmDscInhibitor Dotfield* on page 143
- *.AlarmLoLoInhibitor Dotfield* on page 143
- *.AlarmLoInhibitor Dotfield* on page 144
- *.AlarmHiInhibitor Dotfield* on page 145

- *.AlarmHiHiInhibitor Dotfield* on page 146
- *.AlarmMinDevInhibitor Dotfield* on page 147
- *.AlarmMajDevInhibitor Dotfield* on page 147
- *.AlarmROCInhibitor Dotfield* on page 148

.AlarmDscInhibitor Dotfield

Returns the name of the inhibitor tag assigned to a discrete alarm.

Category

Alarms

Usage

```
TagName.AlarmDscInhibitor
```

Parameter

TagName
Any discrete tag or alarm group.

Remarks

Configured in WindowMaker. Cannot be changed during run time.

Data Types

Message (read-only)

Examples

The .AlarmDSCInhibitor dotfield is used by setting .Name to an Indirect tag that is equal to the value of the .AlarmDscInhibitor tag then manipulating the value of the Indirect tag.

The following statement returns the name of the alarm inhibitor tag for a discrete alarm (assuming SomeIndirectTag is an analog indirect tag):

```
SomeIndirectTag.Name = AlarmedTag.AlarmDscInhibitor;
```

The inhibition state of the alarmed tag can be controlled by setting the value of the indirect tag as follows:

```
SomeIndirectTag = 1;
```

Turns on inhibition. Discrete alarms are disabled for AlarmedTag

```
SomeIndirectTag = 0;
```

Turns off inhibition
Discrete alarms can be generated for AlarmedTag

.AlarmLoLoInhibitor Dotfield

Returns the name of the inhibitor tag assigned to a LoLo alarm.

Category

Alarms

Usage

```
TagName.AlarmLoLoInhibitor
```

Parameter

TagName
Any integer, real, indirect analog tag, or alarm group tag.

Remarks

Configured in WindowMaker. Cannot be changed during run time.

Data Types

Message (read-only)

Examples

The **.AlarmLoLoInhibitor** dotfield is used by setting .Name to an Indirect tag that is equal to the value of the .AlarmLoLoInhibitor tag then manipulating the value of the Indirect tag.

The following statement returns the name of the alarm inhibitor tag for a LoLo alarm limit (assuming SomeIndirectTag is an analog indirect tag):

```
SomeIndirectTag.Name = AlarmedTag.AlarmLoLoInhibitor;
```

The inhibition state of the alarmed tag can be controlled by setting the value of the Indirect tag as follows:

```
SomeIndirectTag = 1;
```

Turns on inhibition
LoLo alarms are disabled for AlarmedTag

```
SomeIndirectTag = 0;
```

Turns off inhibition
LoLo alarms can be generated for AlarmedTag

See Also

.AlarmHiInhibitor, .AlarmHiHiInhibitor, .AlarmLoInhibitor

.AlarmLoInhibitor Dotfield

Returns the name of the inhibitor tag assigned to a Low alarm.

Category

Alarms

Usage

```
TagName.AlarmLoInhibitor
```

Parameter

TagName
Any integer, real, indirect analog tag, or alarm group tag.

Remarks

Configured in WindowMaker. Cannot be changed during run time.

Data Types

Message (read-only)

Examples

The **.AlarmLoInhibitor** dotfield is used by setting .Name to an Indirect tag that is equal to the value of the .AlarmLoInhibitor tag then manipulating the value of the Indirect tag.

The following statement returns the name of the alarm inhibitor tag for a Low alarm limit (assuming SomeIndirectTag is an analog indirect tag):

```
SomeIndirectTag.Name = AlarmedTag.AlarmLoInhibitor;
```

The inhibition state of the alarmed tag can be controlled by setting the value of the Indirect tag as follows:

```
SomeIndirectTag = 1;
```

Turns on inhibition
Low alarms are disabled for AlarmedTag

```
SomeIndirectTag = 0;
```

Turns off inhibition
Low alarms can be generated for AlarmedTag

See Also

.AlarmHiInhibitor, .AlarmHiHiInhibitor, .AlarmLoLoInhibitor

.AlarmHiInhibitor Dotfield

Returns the name of the inhibitor tag assigned to a High alarm.

Category

Alarms

Usage

```
TagName.AlarmHiInhibitor
```

Parameter

TagName
Any integer, real, indirect analog tag, or alarm group tag.

Remarks

Configured in WindowMaker. Cannot be changed during run time.

Data Types

Message (read-only)

Example

The **.AlarmHiInhibitor** dotfield is used by setting .Name to an Indirect tag that is equal to the value of the .AlarmHiInhibitor tag then manipulating the value of the Indirect tag.

The following statement returns the name of the alarm inhibitor tag for a High alarm limit (assuming SomeIndirectTag is an analog indirect tag):

```
SomeIndirectTag.Name = AlarmedTag.AlarmHiInhibitor;
```

The inhibition state of the alarmed tag can be controlled by setting the value of the Indirect tag as follows:

```
SomeIndirectTag = 1;
```

Turns on inhibition
High alarms are disabled for AlarmedTag

```
SomeIndirectTag = 0;
```

Turns off inhibition
High alarms can be generated for AlarmedTag

See Also

.AlarmHiHiInhibitor, .AlarmLoInhibitor, .AlarmLoLoInhibitor

.AlarmHiHiInhibitor Dotfield

Returns the name of the inhibitor tag assigned to a HiHi alarm condition.

Category

Alarms

Usage

```
TagName.AlarmHiHiInhibitor
```

Parameter

TagName
Any integer, real, indirect analog tag, or alarm group tag.

Remarks

Configured in WindowMaker. Cannot be changed during run time.

Data Types

Message (read-only)

Example

The .AlarmHiHiInhibitor dotfield is used by setting .Name to an Indirect tag that is equal to the value of the .AlarmHiHiInhibitor tag then manipulating the value of the Indirect tag. The following statement returns the name of the alarm inhibitor tag for a HiHi alarm limit (assuming SomeIndirectTag is an analog indirect tag):

```
SomeIndirectTag.Name = AlarmedTag.AlarmHiHiInhibitor;
```

The inhibition state of the alarmed tag can be controlled by setting the value of the indirect tag as follows:

```
SomeIndirectTag = 1;
```

Turns on inhibition
HiHi alarms are disabled for AlarmedTag

```
SomeIndirectTag = 0;
```

Turns off inhibition
HiHi alarms can be generated for AlarmedTag

See Also

.AlarmHiInhibitor, .AlarmLoInhibitor, .AlarmLoLoInhibitor

.AlarmMinDevInhibitor Dotfield

Returns the name of the alarm inhibitor tag associated with a minor deviation alarm condition.

Category

Alarms

Usage

```
TagName.AlarmMinDevInhibitor
```

Parameter

TagName
Any integer, real, indirect analog tag, or alarm group tag.

Remarks

Configured in WindowMaker. Cannot be changed during run time.

Data Types

Message (read-only)

Example

The .AlarmMinDevInhibitor dotfield is used by setting .Name to an Indirect tag that is equal to the value of the .AlarmMinDevInhibitor tag then manipulating the value of the Indirect tag. The following statement returns the name of the alarm inhibitor tag for a minor deviation alarm limit (assuming SomeIndirectTag is an analog indirect tag):

```
SomeIndirectTag.Name = AlarmedTag.AlarmMinDevInhibitor;
```

The inhibition state of the alarmed tag can be controlled by setting the value of the Indirect tag as follows:

```
SomeIndirectTag = 1;
```

Turns on inhibition
Minor deviation alarms are disabled for AlarmedTag

```
SomeIndirectTag = 0;
```

Turns off inhibition
Minor deviation alarms can be generated for AlarmedTag

See Also

.AlarmMajDevInhibitor

.AlarmMajDevInhibitor Dotfield

Returns the name of the alarm inhibitor tag associated with a major deviation alarm condition.

Category

Alarms

Usage

```
TagName.AlarmMajDevInhibitor
```

Parameter

TagName
Any integer, real, indirect analog tag, or alarm group tag.

Data Types

Message (read-only)

Example

The .AlarmMajDevInhibitor dotfield is used by setting .Name to an Indirect tag that is equal to the value of the .AlarmMajDevInhibitor tag then manipulating the value of the Indirect tag. The following statement returns the name of the alarm inhibitor tag for a major deviation alarm limit (assuming SomeIndirectTag is an analog indirect tag):

```
SomeIndirectTag.Name = AlarmedTag.AlarmMajDevInhibitor;
```

The inhibition state of the alarmed tag can be controlled by setting the value of the Indirect tag as follows:

```
SomeIndirectTag = 1;
```

Turns on inhibition
Major deviation alarms are disabled for AlarmedTag

```
SomeIndirectTag = 0;
```

Turns off inhibition
Major deviation alarms can be generated for AlarmedTag

See Also

.AlarmMinDevInhibitor

.AlarmROCInhibitor Dotfield

Returns the name of the alarm inhibitor tag associated with a rate-of-change alarm condition.

Category

Alarms

Usage

```
TagName.AlarmROCInhibitor
```

Parameter

TagName
Any integer, real, indirect analog tag, or alarm group tag.

Data Types

Message (read-only)

Example

The .AlarmROCInhibitor dotfield is used by setting .Name to an Indirect tag that is equal to the value of the .AlarmROCInhibitor tag then manipulating the value of the Indirect tag. The following statement returns the name of the alarm inhibitor tag for a rate-of-change alarm limit (assuming SomeIndirectTag is an analog indirect tag):

```
SomeIndirectTag.Name = AlarmedTag.AlarmROCInhibitor;
```

The inhibition state of the alarmed tag can be controlled by setting the value of the Indirect tag as follows:

```
SomeIndirectTag = 1;
```

Turns on inhibition
Rate-of-change alarms are disabled for AlarmedTag

```
SomeIndirectTag = 0;
```

Turns off inhibition
Rate-of-change alarms can be generated for AlarmedTag

Counting the Number of Active or Unacknowledged Alarms

Use the following dotfields to find out the number of active or unacknowledged alarms while the application is running.

Dotfield	Description
.AlarmTotalCount Dotfield on page 149	Counts the number of alarms associated with a tag or alarm group.
.AlarmUnAckCount Dotfield on page 150	Counts the number of unacknowledged alarms associated with a tag or alarm group.
.AlarmValueCount Dotfield on page 151	Counts the number of value alarms associated with a tag.
.AlarmValueUnAckCount Dotfield on page 152	Counts the number of unacknowledged value alarms associated with a tag.
.AlarmDscCount Dotfield on page 152	Counts the number of discrete alarms.
.AlarmDscUnAckCount Dotfield on page 153	Counts the number of unacknowledged discrete alarms.
.AlarmDevCount Dotfield on page 153	Counts the number of deviation alarms.
.AlarmDevUnAckCount Dotfield on page 154	Counts the number of unacknowledged deviation alarms.
.AlarmROCCount Dotfield on page 155	Counts the number of rate-of-change alarms.
.AlarmROCUnAckCount Dotfield on page 155	Counts the number of unacknowledged rate-of-change alarms.

.AlarmTotalCount Dotfield

Tracks the total number of active alarms for a specified tag or alarm group.

Category

Alarms

Usage

```
TagName.AlarmTotalCount
```

Parameter

TagName
Any type of tag or alarm group.

Remarks

The count includes value, deviation, rate-of-change, and discrete alarms. It includes both acknowledged and unacknowledged alarms.

Data Types

Integer (read-only)

Valid Values

0 or any positive integer

Example

Tag1 is an analog tag configured for alarms. ATC is also an analog tag, which gets the total number of all active alarms (both UnAck and Ack) present in Tag1.

```
ATC = Tag1.AlarmTotalCount;
```

See Also

.AlarmDevCount, .AlarmDevUnAckCount, .AlarmDSCCount, .AlarmDSCUnAckCount, .AlarmValueCount, .AlarmUnAckCount, .AlarmValueUnAckCount, .AlarmROCCount, .AlarmROCUnACkCount

.AlarmUnAckCount Dotfield

Tracks the total number of unacknowledged alarms for a specified tag or alarm group.

Category

Alarms

Usage

```
TagName.AlarmUnAckCount
```

Parameter

TagName
Any type of tag or alarm group.

Remarks

The count includes unacknowledged value, deviation, rate-of-change, and discrete alarms.

Data Types

Integer (read-only)

Valid Values

0 or any positive integer

Example

Tag1 is an analog or discrete tag configured for alarms. AUC is an analog tag, which gets the total number of unacknowledged alarms present in Tag1.

```
AUC = Tag1.AlarmUnAckCount;
```

See Also

.AlarmDevCount, .AlarmDevUnAckCount, .AlarmDscCount, .AlarmDscUnAckCount, .AlarmValueCount, .AlarmTotalCount, .AlarmValueUnAckCount, .AlarmROCCount, .AlarmROCUnACkCount

.AlarmValueCount Dotfield

Tracks the total number of active value alarms for a specified tag or alarm group.

Category

Alarms

Usage

```
TagName.AlarmValueCount
```

Parameter

TagName
Any integer, real, indirect analog tag, or alarm group.

Remarks

This includes the count of HiHi, High, Low, and LoLo alarms. It includes both acknowledged and unacknowledged alarms. For non-expanded summary alarm tags, this count will not exceed 1. However, the count may vary with alarm groups.

Data Types

Integer (read-only)

Valid Values

0 or any positive integer

Example

Tag1 is an analog tag configured for value alarms. AVC is also an analog tag, which gets the total number of all alarm values present in Tag1.

```
AVC = Tag1.AlarmValueCount;
```

See Also

.AlarmDevCount, .AlarmDevUnAckCount, .AlarmDscCount, .AlarmDscUnAckCount, .AlarmROCCount, .AlarmTotalCount, .AlarmValueUnAckCount, .AlarmROCUnAckCount, .AlarmUnAckCount

.AlarmValueUnAckCount Dotfield

Tracks the total number of unacknowledged value alarms for a specified tag or alarm group. This includes the count of HiHi, High, Low, and LoLo alarms.

Category

Alarms

Usage

```
TagName.AlarmValueUnAckCount
```

Parameter

TagName
Any integer, real, indirect analog tag, or alarm group.

Data Types

Integer (read-only)

Valid Values

0 or any positive integer

Example

Tag1 is an analog tag configured for value alarms. AVUC is also an analog tag, which gets the total number of all unacknowledged value alarms present in Tag1.

```
AVUC = Tag1.AlarmValueUnAckCount;
```

See Also

.AlarmDevCount, .AlarmDevUnAckCount, .AlarmDscCount, .AlarmDscUnAckCount, .AlarmROCCount, .AlarmTotalCount, .AlarmValueCount, .AlarmROCUnAckCount, .AlarmUnAckCount

.AlarmDscCount Dotfield

Tracks the total number of active discrete alarms for a specified tag or alarm group.

Category

Alarms

Usage

```
TagName.AlarmDscCount;
```

Parameter

TagName
Any discrete tag, indirect discrete tag, or alarm group.

Remarks

The count assigned to The **AlarmDscCount** dotfield includes both acknowledged and unacknowledged alarms. For non-expanded summary alarm tags, this count is always 1. However, the count can vary for alarm groups.

Data Types

Integer (read-only)

Valid Values

0 or any positive integer

Example

Tag1 is a discrete tag configured for discrete alarms. ADC is an analog tag, which gets the total number of active discrete alarms (both unacknowledged and acknowledged) present in Tag1.

```
ADC = Tag1.AlarmDSCCount;
```

See Also

.AlarmDevCount, .AlarmDevUnAckCount, .AlarmValueCount, .AlarmROCUnAckCount, .AlarmTotalCount, .AlarmDscUnAckCount, .AlarmValueUnAckCount, .AlarmROCUnAckCount, .AlarmUnAckCount

.AlarmDscUnAckCount Dotfield

Tracks the total number of unacknowledged discrete alarms for a specified tag or alarm group.

Category

Alarms

Usage

```
TagName.AlarmDscUnAckCount
```

Parameter

TagName
Any discrete tag, indirect discrete tag, or alarm group.

Data Types

Integer (read-only)

Valid Values

0 or any positive integer

Example

Tag1 is a discrete tag configured for discrete alarms. ADUC is an analog tag, which gets the total number of unacknowledged discrete alarms present in Tag1.

```
ADUC = Tag1.AlarmDscUnAckCount;
```

See Also

.AlarmDevCount, .AlarmDevUnAckCount, .AlarmDscCount, .AlarmValueCount, .AlarmROCCount, .AlarmTotalCount, .AlarmValueUnAckCount, .AlarmROCUnAckCount, .AlarmUnAckCount

.AlarmDevCount Dotfield

Tracks the total number of active deviation alarms for a specified tag or alarm group.

Category

Alarms

Usage

```
TagName.AlarmDevCount
```

Parameter

TagName
Any real tag, integer tag, indirect analog tag, or alarm group.

Remarks

This includes the count of minor and major deviation alarms. It includes both acknowledged and unacknowledged alarms. For non-expanded summary alarm tags, this count is always 1. However, the count can vary with alarm groups.

Data Types

Analog (read-only)

Valid Values

0 or any positive integer

Example

Tag1 is an analog tag configured for Deviation alarms. ADC is also an analog tag, which gets the total number of active deviation (both unacknowledged and acknowledged) alarms present in Tag1.

```
ADC=Tag1.AlarmDevCount;
```

See Also

.AlarmDSCCount, .AlarmValueCount, .AlarmROCUnAckCount, .AlarmTotalCount, .AlarmDSCUnAckCount, .AlarmValueUnAckCount, .AlarmDevUnAckCount, .AlarmROCUnAckCount, .AlarmUnAckCount

.AlarmDevUnAckCount Dotfield

Tracks the total number of unacknowledged deviation alarms for a specified tag or alarm group. This includes the count of minor and major deviation alarms.

Category

Alarms

Usage

```
TagName.AlarmDevUnAckCount
```

Parameter

TagName
Any real tag, integer tag, indirect analog tag, or alarm group.

Data Types

Analog (read-only)

Valid Values

0 or any positive integer

Example

Tag1 is an analog tag configured for Deviation alarms. ADUC is also an analog tag, which gets the total number of unacknowledged deviation alarms present in Tag1.

```
ADUC = Tag1.AlarmDevUnAckCount;
```

See Also

.AlarmDevCount, .AlarmDSCCount, .AlarmValueCount, .AlarmROCUnAckCount, .AlarmTotalCount, .AlarmDSCUnAckCount, .AlarmValueUnAckCount, .AlarmROCUnAckCount, .AlarmUnAckCount

.AlarmROCCount Dotfield

Tracks the total number of active rate-of-change alarms for a specified tag or alarm group. It includes both acknowledged and unacknowledged alarms. For non-expanded summary alarm tags, this count will always be 1. However, the count may vary with alarm groups.

Category

Alarms

Usage

```
TagName.AlarmROCCount
```

Parameter

TagName
Any real tag, integer tag, indirect analog tag, or alarm group.

Data Types

Integer (read-only)

Valid Values

0 or any positive integer

Example

Tag1 is an analog tag configured for rate-of-change alarms. ARC is also an analog tag, which gets the total number of active rate-of-change alarms (both unacknowledged and acknowledged) present in Tag1.

```
ARC = Tag1.AlarmROCCount;
```

See Also

.AlarmDevCount, .AlarmDevUnAckCount, .AlarmDscCount, .AlarmDscUnAckCount, .AlarmValueCount, .AlarmTotalCount, .AlarmValueUnAckCount, .AlarmROCUnAckCount, .AlarmUnAckCount

.AlarmROCUnAckCount Dotfield

Tracks the total number of unacknowledged rate-of-change alarms for a specified analog tag or alarm group.

Category

Alarms

Usage

```
TagName.AlarmROCUnAckCount
```

Parameter

TagName
Any real tag, integer tag, indirect analog tag, or alarm group.

Data Types

Integer (read-only)

Valid Values

0 or any positive integer

Example

Tag1 is an analog tag configured for rate-of-change alarms. ARUC is also an analog tag, which gets the total number of unacknowledged rate-of-change alarms present in Tag1.

```
ARUC = Tag1.AlarmROCUnAckCount;
```

See Also

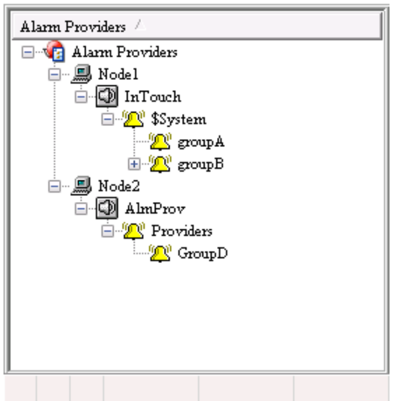
.AlarmDevCount, .AlarmDevUnAckCount, .AlarmDscCount, .AlarmDscUnAckCount, .AlarmValueCount, .AlarmTotalCount, .AlarmValueUnAckCount, .AlarmROCCount, .AlarmUnAckCount

Chapter 7

Viewing Alarm Hierarchies

About Viewing Alarm Hierarchies

The Alarm Tree Viewer ActiveX control shows the alarm group hierarchy of alarm providers selected by an alarm query. Items that appear in the Alarm Tree Viewer control include alarm providers, nodes, and groups.



You can enhance the usability of the Alarm Viewer control by using an Alarm Tree Viewer control. You can create a script so that when the operator selects an alarm provider in the Alarm Tree Viewer control, the Alarm Viewer control queries the new alarm provider.

You can configure how the Alarm Tree Viewer control appears and what data is shown. For more information, see *Configuring an Alarm Tree Viewer Control* on page 157.

When you finish configuring the Alarm Tree Viewer control, you can modify the data you are viewing by:

- Sorting the data by name.
- Updating the tree.
- Performing another query.

For more information about ActiveX controls, see ActiveX Controls in the InTouch® HMI Visualization Guide.

Configuring an Alarm Tree Viewer Control

You can configure the following for the Alarm Tree Viewer control:

- General control appearance, including colors
- Text font

- Automatic refresh
- Which features users can access at run time
- Which providers and groups to show
- Custom saved queries
- Sort order for alarm groups

You can configure these options from within WindowMaker and while the Alarm Tree Viewer control is running.

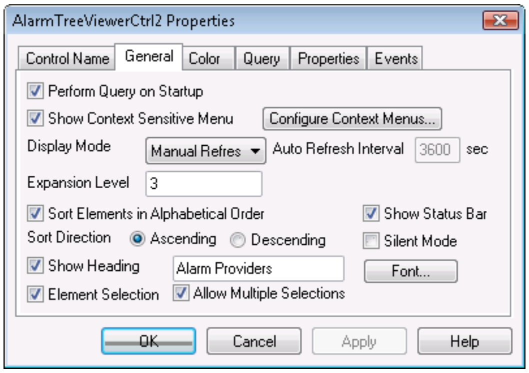
Configuring the Appearance and Colors

When you configure the visual appearance of the Alarm Tree Viewer control, you can:

- Include a status bar.
- Include a column header.
- Set the colors of visual elements.

To configure the appearance

1. Right-click the Alarm Tree Viewer control, and then click **Properties**. The AlarmTreeViewerCtrl **Properties** dialog box appears.
2. Click the General tab.



AlarmTreeViewerCtrl2 Properties

☑ Perform Query on Startup

☑ Show Context Sensitive Menu

Display Mode: Manual Refres

Auto Refresh Interval: 3600 sec

Expansion Level: 3

☑ Sort Elements in Alphabetical Order

☑ Show Status Bar

Sort Direction: ● Ascending ○ Descending

□ Silent Mode

☑ Show Heading: Alarm Providers

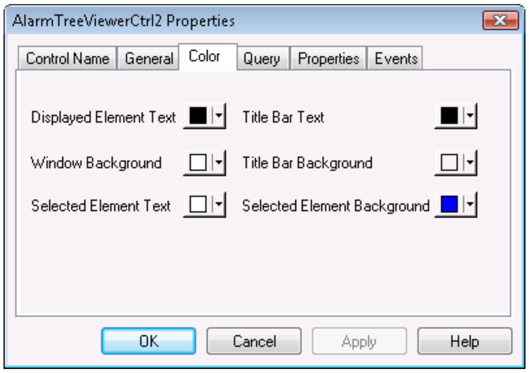
☑ Element Selection

☑ Allow Multiple Selections

3. Configure how the Alarm Tree Viewer control appears to run-time users. Do any of the following:
   - Select the **Perform Query on Startup** check box for the tree to automatically update using default query properties. Otherwise, users must run the Refresh command to update the tree.
   - Select the **Show Context Sensitive Menu** check box to activate the shortcut menu. Click Configure Context Menus to configure what commands appear on the menu. For more information, see *Controlling Which Features Users Can Access at Run Time* on page 331.
   - In the **Display Mode** list, click how you want the tree to refresh. For an automatic refresh, type the refresh interval the **Auto Refresh Interval** box. The range is 5 to 32767 seconds.
   - In the **Expansion Level box**, type the number of expansion levels for the tree. This determines to which alarm group branch level the alarm tree is opened when you manually refresh the control. A value of 1 shows only the provider, a value of 2 shows the direct alarm groups of the provider, and so on.

- Select the **Sort Elements in Alphabetical Order** check box to sort the tree elements in alphabetical order. Click either **Ascending** or **Descending** for the sort direction.
- Select the **Show Heading** check box to show a header above the hierarchy. In the box, type the header bar text.
- Select the **Show Status Bar** check box to show a status bar at the bottom of the Alarm Tree Viewer control.
- Click Font to configure the font properties for the tree. The standard Windows **Font** dialog box appears.
- Select the **Element Selection** check box to enable users to select an element in the tree.
- Select the **Allow Multiple Selections** check box to enable users to select one or more elements using the CTRL and SHIFT keys.
- Select the Silent Mode check box prevent the Alarm Tree Viewer control from showing run-time error messages. Error messages are always sent to the Logger.

4. Click Apply.
5. Click the **Color** tab.



Displayed Element Text ■ Title Bar Text ■
Window Background □ Title Bar Background □
Selected Element Text □ Selected Element Background 🟦

6. Click the palette button to assign colors to the visual elements of the Alarm Tree Viewer control.

   You can set the colors of the title bar text, window background, selected element text, and selected element background.

7. Click **Apply**.

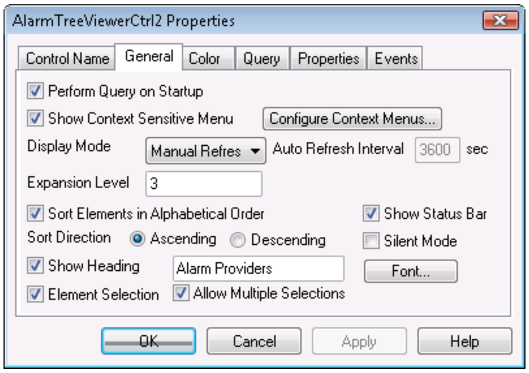
Configuring Fonts

You can configure how the text appears for the Alarm Tree Viewer control.

To configure the font

1. Right-click the Alarm Tree Viewer control, and then click **Properties**. The AlarmTreeViewerCtrl **Properties** dialog box appears.

2. Click the General tab.



AlarmTreeViewerCtrl2 Properties

☑ Perform Query on Startup

☑ Show Context Sensitive Menu

Display Mode: Manual Refres

Auto Refresh Interval: 3600 sec

Expansion Level: 3

☑ Sort Elements in Alphabetical Order

☑ Show Status Bar

Sort Direction ● Ascending ○ Descending

□ Silent Mode

☑ Show Heading: Alarm Providers

☑ Element Selection ☑ Allow Multiple Selections

3. Click Font. The standard Windows **Font** dialog box appears. Configure the font and then click **OK**.

4. Click **OK**.

Configuring Automatic Refresh

You can configure the Alarm Tree Viewer control to refresh automatically at run time. Otherwise, the operator must refresh the Alarm Tree Viewer control manually.

To configure automatic refresh

1. Right-click the Alarm Tree Viewer control, and then click Properties. The AlarmTreeViewerCtrl **Properties** dialog box appears.

2. Click the General tab.

3. In the **Display Mode** list, click how you want the tree to refresh, either **Manual Refresh** or **Auto Refresh**. For an automatic refresh, type the tree refresh interval the **Auto Refresh Interval** box. The range is 5 to 32767 seconds.

4. Click **Apply**.

Tuning the Alarm Tree View Refresh

When the Alarm Tree View is being refreshed, it is possible that the alarm providers listed in the tree do not match the alarm providers that were included in the query. This can occur if remote alarm providers have very large hierarchies of alarm groups or if the network connection with the alarm providers is slow.

To ensure that the Alarm Tree View refreshes properly, there are three settings that can be entered and tuned in the [InTouch] section of the InTouch.ini file. These settings specify how long to wait for a complete response to the query and how frequently to retry the alarm query during that period.

These settings are not included in the InTouch.ini file by default and must be manually entered to tune them. When the settings are not explicitly entered in the InTouch.ini file, their default values are used.

AlarmTreeFastRetryMax

This setting determines how long immediately after a query was submitted that fast retries (1 per second) of the tree data retrieval will be performed. Values are in seconds.

Allowed values: 1 to 32767

Default value: 10

Example:

```
[InTouch]
AlarmTreeFastRetryMax=5
```

AlarmTreeSlowRetryInterval

Once the fast retries have been completed, this setting determines the frequency, in seconds, with which additional retries of the tree data retrieval will be performed.

Allowed values: 1 to 32767

Default value: 5

Example:

```
[InTouch]
AlarmTreeSlowRetryInterval=10
```

AlarmTreeTotalRetryMax

This setting specifies the maximum duration, in seconds, for which both types of retries will be performed.

Allowed values: 1 to 32767

Default value: 30

Example:

```
[InTouch]
AlarmTreeTotalRetryMax=60
```

Retry Behavior with the Default Settings

For example, using the default retry settings and the default maximum retry duration of 30 seconds:

1. During the fast retry interval, the retrieval will be retried for 10 seconds, once every second.
2. During the slow retry interval, the retrieval will be retried every 5 seconds for another 20 seconds.

When the Refresh Is Considered Complete

The display will continue retrying until:

- Connections are completed to all of the providers specified in the alarm query, and
- The hierarchy trees are shown for all the providers requested

The display refresh timers are reset to their modified or default values each time a query is submitted.

Managing Access to Features at Runtime

The Alarm Tree Viewer control includes a shortcut menu that operators can open by right-clicking on the control during run time. You can configure what commands appear on the menu.

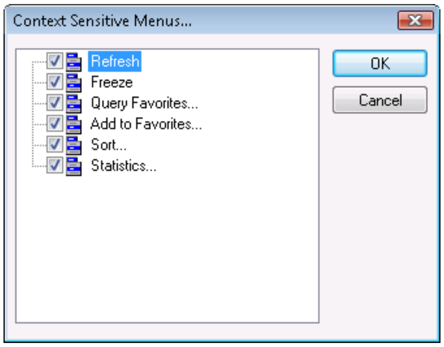
To configure the run-time shortcut menu

1. Right-click the Alarm Tree Viewer control, and then click Properties. The AlarmTreeViewerCtrl Properties dialog box appears.

2. Click the General tab.

3. Select the Show Context Sensitive Menu check box to activate the shortcut menu.

4. Click Configure Context Menus. The Context Sensitive Menus dialog box appears.



5. Select the check box for each command that you want to appear in the shortcut menu. You must select least one shortcut command.

Command	Description
Refresh	Refreshes the data shown in the Alarm Tree Viewer control.
Freeze	Allows you to toggle the freeze/unfreeze mode of the tree.
Query Favorites	Shows the **Alarm Query** dialog box to select a query favorite from an available list.
Add to Favorites	Allows you to add new queries from the **Add Query** dialog box.
Sort	Shows the **Sort** dialog box to sort Alarm Tree Viewer control data in ascending or descending order
Statistics	Shows the **Alarm Statistics** dialog box with the percentage of current retrieved alarm providers shown in the Alarm Tree Viewer control.

6. Click **OK** to close the **Context Sensitive Menus** dialog box.

7. Click **Apply**.

Configuring Which Providers and Groups to Show

You configure alarm queries for alarm providers and groups that belong to the Alarm Tree Viewer control. The alarm query is a list of one or more alarm providers separated by spaces. The valid syntax for the alarm provider is as follows.

Full path to alarm provider:

\\Node\ProviderName

Path to local alarm provider:

\ProviderName

For multiple queries, separate each query with a space. For example:

\InTouch \\Node17\InTouch \\MyNode\InTouch

The default alarm query is \InTouch. You cannot use a tag for the alarm query.

If you query multiple alarm groups and later you undeploy one or more groups, the Alarm Tree Viewer control does not automatically update to remove these groups from the view. You must stop and re-start the alarm provider to un-register it.

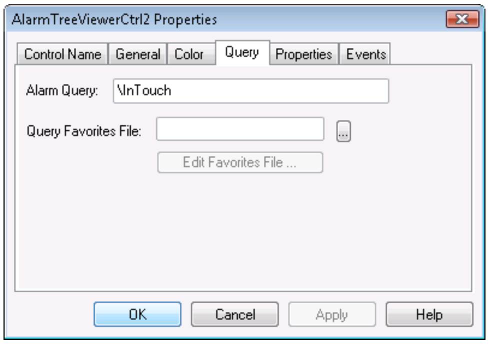
If you query an ArchestrA Galaxy by specifying \Galaxy in your alarm query, then all InTouch alarm providers deployed within the Galaxy are shown. For example:

\\Node\Galaxy!Area[name]

If you query information from a node with multiple alarm providers that contain groups with the same names, records are shown for the last alarm provider in the tree.

To configure the alarm query

1. Right-click the Alarm Tree Viewer control and then click Properties. The **AlarmTreeViewerCtrl Properties** dialog box appears.
2. Click the Query tab.



Alarm Query: \InTouch

3. In the **Alarm Query** box, type the path to the initial alarm query.
4. Click Apply.

Creating Custom Saved Queries Using Query Favorites

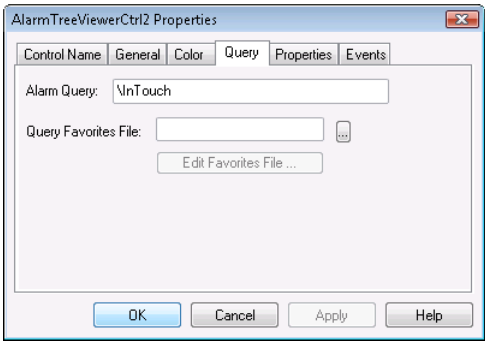
You can configure a list of query favorites for operators to select from a shortcut menu.

The query file can be saved to any folder and does not need to be in the InTouch application folder. The alarm query file is an .xml file.

To configure the query favorites file

1. Right-click the Alarm Tree Viewer control and then click Properties. The **AlarmTreeViewerCtrl Properties** dialog box appears.

2. Click the Query tab.



Alarm Query: \InTouch

Query Favorites File:

3. Configure the query favorites file.

   a. In the Query Favorites File box, type the network path and file name or click the ellipse button to browse for the file.

   b. To edit the **Filter Favorites** file, click the **Edit Favorites File** button. The **Alarm Query** window opens, allowing you to add, modify, or delete filters from your favorites file. When you are done, click **OK** to save your changes and close the window.

4. Click **OK**.

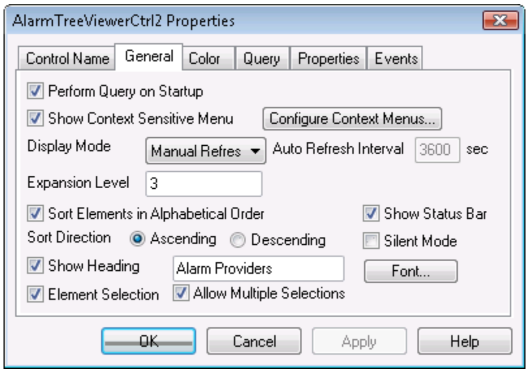
Configuring the Sort Order for Alarm Groups

In the Alarm Tree Viewer control, nodes and alarm groups can be shown in alphabetical order, either ascending or descending.

To configure the sort order of alarm groups

1. Right-click the Alarm Tree Viewer control and then click Properties. The **AlarmTreeViewerCtrl Properties** dialog box appears.

2. Click the **General** tab.



☑ Perform Query on Startup

☑ Show Context Sensitive Menu

Display Mode: Manual Refres

Auto Refresh Interval: 3600 sec

Expansion Level: 3

☑ Sort Elements in Alphabetical Order

☑ Show Status Bar

Sort Direction ● Ascending ○ Descending

□ Silent Mode

☑ Show Heading: Alarm Providers

☑ Element Selection

☑ Allow Multiple Selections

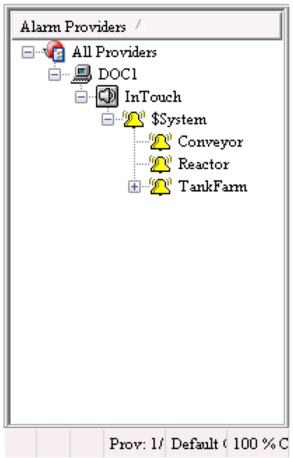
3. Select the **Sort Elements in Alphabetical Order** check box to list alarm groups in alphabetical order.

4. Click **Ascending** or **Descending** to specify the sort direction.

5. Click **OK**.

Using an Alarm Tree Viewer Control at Run Time

Use the Alarm Tree Viewer control to navigate the hierarchy of alarm providers and alarm groups.



The Alarm Tree Viewer control can show multiple nodes and alarm providers.

- Nodes are represented by a computer icon.
- Alarm providers are represented by a speaker icon.
- Alarm groups are represented by a bell icon.

With one or more alarm groups selected, you can generate queries for alarms that can be used in the Alarm Tree Viewer control and the Alarm DB View controls. To select multiple alarm groups, hold down the shift key while clicking on a group. To un-select all groups, click on an empty area.

One or more of the following commands appears on the run-time shortcut menu, depending on how the control is configured:

- **Refresh** – Forces a manual update of the alarms.
- **Freeze** – Stops the alarms from updating.
- **Query Favorites** – Opens the **Alarm Query** dialog box where you can select an alarm query from a list of previously defined alarm queries.
- **Add to Favorites** – Opens the **Add Query** dialog box with a query string entered based on the selected Groups (if any).
- **Sort** – Opens the **Sort** dialog box with options to alphabetically sort alarm groups in ascending or descending order.
- **Statistics** – Opens the **Alarm Statistics** dialog box to show the percentage of retrieved alarm providers.

Understanding Alarm Tree Viewer Control Status Bar Information

The Alarm Tree Viewer control status bar appears at the bottom of the window and shows the following information:

- Name of the current query
- Percentage complete status of the current query

Using Query Favorites

Use the Query Favorites command on the Alarm Tree Viewer control's shortcut menu to quickly select and run and alarm query from a list of previously defined alarm queries. You can also create new named queries, edit an existing query, or delete an existing query.

To select and run an alarm query

1. Right-click the Alarm Tree Viewer control at run time.
2. Click Query Favorites. The Alarm Query dialog box appears.
3. Select the named query that you want to show in the list of currently defined queries.
4. Click OK. The Alarm Tree Viewer control shows alarm group information from the selected query.

Using Alarm Tree Viewer Control ActiveX Properties

You can set the value an Alarm Tree Viewer control property directly using a script or you can assign it to an InTouch tag or I/O reference. For more information about setting properties, see Scripting ActiveX Controls in the InTouch® HMI Scripting and Logic Guide.

The following table lists all Alarm Tree Viewer control properties. For more information on setting color values, see *Configuring Colors for ActiveX Controls* on page 68.

Property Name	Purpose
AddtoFavoritesMenu	Enables or disables the **Add to Favorites** shortcut menu command.
AlarmQuery	Shows the initial alarm query and allows you to change the query. The valid syntax is `\\<node>\<provider>` or `\<provider>`.
ElementSelection	Controls whether an element in the tree can be selected or not by the operator during run time.
ExpansionLevel	Sets the branch level to which the alarm tree is opened when you manually refresh the control. A value of 1 shows only the provider, a value of 2 shows the direct alarm groups of the provider, and so on.
Font	Gets or sets the font of records and headings shown in the control.
FreezeMenu	Enables or disables the **Freeze** menu command.
HeaderText	Gets or sets the text that appears in the header of the Alarm Tree Viewer control.
MultiSelection	Allows you to select multiple elements in the Alarm Tree Viewer control.
QueryFavoritesFile	Gets or sets the query favorites file name.

Property Name	Purpose
QueryFavoritesMenu	Enables or disables the **Query Favorites** menu command.
QueryStartup	Automatically updates the Alarm Tree Viewer control using default query properties if selected. If not selected, you must requery to update the Alarm Tree Viewer control.
RefreshInterval	Gets the auto refresh interval of the control in seconds.
RefreshMenu	Gets or sets a value that determines whether the **Refresh** command appears in the shortcut menu.
SelTextBackColor	Gets or sets the background color for the selected element.
SelTextColor	Gets or sets the text color for the selected element.
ShowContextMenu	Enables or disables the shortcut menu.
ShowHeading	Shows or hides the title bar of the Alarm Tree Viewer control.
ShowStatusBar	Gets or sets a value that determines whether the status bar is shown.
SilentMode	Gets or sets a value that determines whether the control is in Silent mode.
SortElements	Enables or disables sorting in the Alarm Tree Viewer control.
SortMenu	Enables or disables the **Sort** menu command.
SortOrder	Gets or sets the sort direction. Possible values are "Ascending" and "Descending," represented as 0 and 1 respectively.
StatsMenu	Enables or disables the **Statistics** menu command.
TextColor	Gets or sets the text color the Alarm Tree Viewer control.
TitleBackColor	Gets or sets the title bar background color. Available only if the ShowHeading property is set.
TitleForeColor	Gets or sets the title bar foreground color. Available only if the ShowHeading property is set.
WindowColor	Gets or sets the window background color of the Alarm Tree Viewer control.

Using Alarm Tree Viewer Control ActiveX Methods

You can use the Alarm Tree Viewer control methods in scripts to:

- Retrieve information about the control.
- Retrieve information about specific entries in the alarm hierarchy.
- Freeze the control.
- Create query strings.
- Run queries.

For more information about calling methods, see Scripting ActiveX Controls in the InTouch® HMI Scripting and Logic Guide.

Retrieving Information About the Control

You can use these methods to retrieve information about the Alarm Tree Viewer control.

- *AboutBox() Method* on page 81
- *GetElementCount() Method* on page 168

AboutBox()

Shows the Alarm Tree Viewer About dialog box.

GetElementCount() Method

Gets the total number of elements in the tree.

Syntax

```
Object.GetElementCount()
```

Example

The name of the control is AlarmTreeViewerCtrl1 and nTag1 is an integer or real tag.

```
nTag1 = #AlarmTreeViewerCtrl1.GetElementCount();
```

Retrieving Information About Specific Entries

You can use a set of methods to retrieve information about elements shown in the Alarm Tree Viewer control window.

- *CheckElementMembership() Method* on page 169
- *GetElementCount() Method* on page 168
- *GetElementName() Method* on page 169
- *GetElementPath() Method* on page 169
- *GetSelectedElementCount() Method* on page 170
- *GetSelectedElementName() Method* on page 170
- *GetSelectedElementPath() Method* on page 170
- *GetSubElementCount() Method* on page 171

- *GetSubElementName() Method* on page 171
- *GetSubElementPath() Method* on page 172

CheckElementMembership() Method

Checks if the descendant tree element is part of the ancestor tree element.

Syntax

```
Object.CheckElementMembership(PathName, DescendantElementName, AncestorElementName)
```

Parameter

PathName
The name of the path. For example, \InTouch or \\NodeName.

DescendantElementName
The name of the descendant element name. For example, GroupA.

AncestorElementName
The name of the ancestor element name. For example, GroupB.

GetElementCount() Method

Gets the total number of elements in the tree.

Syntax

```
Object.GetElementCount()
```

Example

The name of the control is AlarmTreeViewerCtrl1 and nTag1 is an integer or real tag.

```
nTag1 = #AlarmTreeViewerCtrl1.GetElementCount();
```

GetElementName() Method

Gets the element name corresponding to the index.

Syntax

```
Object.GetElementName(ElementIndex)
```

Parameter

ElementIndex
The index of the element.

Example

The name of the control is AlarmTreeViewerCtrl1 and StrTag is a message tag.

```
StrTag = #AlarmTreeViewerCtrl1.GetElementName(3);
```

GetElementPath() Method

Gets the element path corresponding to the index, down to the indicated expansion level.

Syntax

```
Object.GetElementPath(ElementIndex, ExpansionLevel)
```

Parameter

ElementIndex
The index of the element.

ExpansionLevel
The level of expansion.

Example

The name of the control is AlarmTreeViewerCtrl1, StrTag is a message tag, and returns the path of the element at index 17 up to 4 levels.

```
StrTag = #AlarmTreeViewerCtrl1.GetElementPath(17, 4);
```

GetSelectedElementCount() Method

Gets the number of selected elements in the tree.

Syntax

```
Object.GetSelectedElementCount()
```

Example

The name of the control is AlarmTreeViewerCtrl1 and nTag1 is an integer or real tag.

```
nTag1 = #AlarmTreeViewerCtrl1.GetSelectedElementCount();
```

GetSelectedElementName() Method

Gets the name of the selected element on the Alarm Tree Viewer control.

Syntax

```
Object.GetSelectedElementName()
```

Example

The name of the control is AlarmTreeViewerCtrl1 and **StrTag is a message tag.**

```
StrTag = #AlarmTreeViewerCtrl1.GetSelectedElementName();
```

GetSelectedElementPath() Method

Gets the path of the selected element to the indicated expansion level.

Syntax

```
Object.GetSelectedElementPath(ExpansionLevel)
```

Parameter

ExpansionLevel
The level of expansion.

Example

The name of the control is AlarmTreeViewerCtrl1 and StrTag is a message tag.

```
StrTag = #AlarmTreeViewerCtrl1.GetSelectedElementPath(3);
```

GetSubElementCount() Method

Gets the total number of sub-elements from the indicated element.

Syntax

```
Object.GetSubElementCount(Path, ElementName)
```

Parameter

Path
The name of the path. For example:
\\NodeName\InTouch
If the path parameter is empty, the Alarm Tree Viewer control finds the first element of the tree that matches the indicated element name.

ElementName
The name of the element. For example, Group1.

Examples

The name of the control is AlarmTreeViewerCtrl1 and nTag1 is an integer or real tag.

```
nTag1 = #AlarmTreeViewerCtrl1.GetSubElementCount("", "Group1" );
nTag1 = #AlarmTreeViewerCtrl1.GetSubElementCount( "\\NodeName", "Group1" );
nTag1 = #AlarmTreeViewerCtrl1.GetSubElementCount( "\InTouch", "Group1" );
nTag1 = #AlarmTreeViewerCtrl1.GetSubElementCount( "\\NodeName\InTouch", "Group1" );
```

GetSubElementName() Method

For the indicated element, gets the name of the sub-element at the corresponding index.

Syntax

```
Object.GetSubElementName(Path, ElementName, ElementIndex)
```

Parameter

Path
The name of the path. For example:
\\NodeName\InTouch
If the path parameter is empty, the Alarm Tree Viewer control finds the first element of the tree that matches the indicated element name.

ElementName
The name of the element. For example, Group1.

ElementIndex
The index of the element.

Examples

The name of the control is AlarmTreeViewerCtrl1 and StrTag is a message tag.

```
StrTag = #AlarmTreeViewerCtrl1.GetSubElementName("", "Group1", 1);
StrTag = #AlarmTreeViewerCtrl1.GetSubElementName("\\NodeName", "Group1", 1);
StrTag = #AlarmTreeViewerCtrl1.GetSubElementName("\InTouch", "Group1", 1);
StrTag = #AlarmTreeViewerCtrl1.GetSubElementName("\\NodeName\InTouch", "Group1", 1);
```

GetSubElementPath() Method

Gets the path of the sub-element from the index of the element name to the indicated expansion level.

Syntax

```
Object.GetSubElementPath(Path, ElementName, ElementIndex, ExpansionLevel)
```

Parameter

Path
The name of the path. For example:
\\NodeName\InTouch
If the path parameter is empty, the Alarm Tree Viewer control finds the first element of the tree that matches the indicated element name.

ElementName
The name of the element. For example, Group1.

ElementIndex
The index of the element.

ExpansionLevel
The level of expansion.

Examples

The name of the control is AlarmTreeViewerCtrl1 and StrTag is a message tag.

```
StrTag = #AlarmTreeViewerCtrl1.GetSubElementPath("", "Group1", 1, 3);
StrTag = #AlarmTreeViewerCtrl1.GetSubElementPath("\\NodeName", "Group1", 1, 3);
StrTag = #AlarmTreeViewerCtrl1.GetSubElementPath("\InTouch", "Group1", 1, 3);
StrTag = #AlarmTreeViewerCtrl1.GetSubElementPath("\\NodeName\InTouch", "Group1", 1, 3);
```

Freezing the Tree

You can use the Freeze() method to prevent the Alarm Tree Viewer control tree from being updated with any further changes.

Freeze() Method

Freezes the Alarm Tree Viewer control tree.

Syntax

```
Object.Freeze(Frozen)
```

Parameters

Frozen
Contols whether the tree can be updated.

1 = Freezes the tree.

0 = Unfreezes the tree.

Example

Tag1 is defined as memory discrete tag and the name of the control is AlarmTreeViewerCtrl1.

```
Tag1 = 1;
```

```
#AlarmTreeViewerCtrl1.Freeze(Tag1);
```

Creating a Query String from a Selection

You can use the GetAlarmQueryFromSelection() method to retrieve a query string from a selected element in the Alarm Tree Viewer control. The query string can then be used dynamically in an Alarm Viewer control.

GetAlarmQueryFromSelection() Method

Returns an alarm query string from the selected element in the Alarm Tree Viewer control.

Syntax

```
Object.GetAlarmQueryFromSelection()
```

Example

The name of the control is AlarmTreeViewerCtrl1 and StrTag is a message tag. For example: StrTag is set to \\NodeName\InTouch\GroupA.

```
StrTag = #AlarmTreeViewerCtrl1.GetAlarmQueryFromSelection();
```

Running Queries

You can run queries for the Alarm Tree Viewer control using methods that either retrieve an existing query saved in a query favorites file or set a string that specifies a new collection of alarm providers.

- *SetQueryByName() Method* on page 78
- *SetQueryByString() Method* on page 173

SetQueryByName() Method

Sets the current query as specified by the query name passed. The query must be in the query favorites file.

Syntax

```
Object.SetQueryByName(QueryName)
```

Parameter

QueryName
The name of the query as created by using query favorites. For example, Turbine Queries.

Example

The name of the control is AlarmTreeViewerCtrl1.

```
#AlarmTreeViewerCtrl1.SetQueryByName("Turbine Queries");
```

SetQueryByString() Method

Sets the current query as a new string specifying a new collection of Alarm Providers.

Syntax

```
Object.SetQueryByString(NewQuery)
```

Parameters

NewQuery
String containing an alarm query. For example:
\\MasterNode\InTouch

Example

The name of the control is AlarmTreeViewerCtrl1.

```
#AlarmTreeViewerCtrl1.SetQueryByString("\\MasterNode\InTouch");
```

Error Handling While Using Methods and Properties

All Alarm Tree Viewer control error messages are sent to the Logger. If you configure the Alarm Tree Viewer control to run in silent mode, no run-time errors are shown.

Using Alarm Tree Viewer Control ActiveX Events to Trigger Scripts

You can assign QuickScripts to Alarm Tree Viewer control events, such as a mouse click or double-click. When the event occurs, the QuickScript runs.

The Alarm Tree Viewer control supports the following events:

- Click
- DoubleClick
- ShutDown
- StartUp

The Click event has one parameter called ClicknElementID, which identifies the element in the tree that is clicked at run time.

The DoubleClick event has one parameter called DoubleClicknElementID, which identifies the element in the tree that is double-clicked at run time.

For the Click and DoubleClick events, an ElementID of -1 is returned for the "All Providers" node.

Note: The Alarm Tree Viewer control ignores the user interface methods when they are called from the StartUp event, because the control is not visible yet. These methods include: AboutBox(), CheckElementMembership(), Freeze(), GetAlarmQueryFromSelection(), GetElementCount(), GetElementName(), GetElementPath(), GetSelectedElementCount(), GetSelectedElementName(), GetSelectedElementPath(), GetSubElementCount(), GetSubElementName(), GetSubElementPath(), and Refresh().

For more information about scripting ActiveX events, see Scripting ActiveX Controls in the InTouch® HMI Scripting and Logic Guide.

Chapter 8

Printing Alarms

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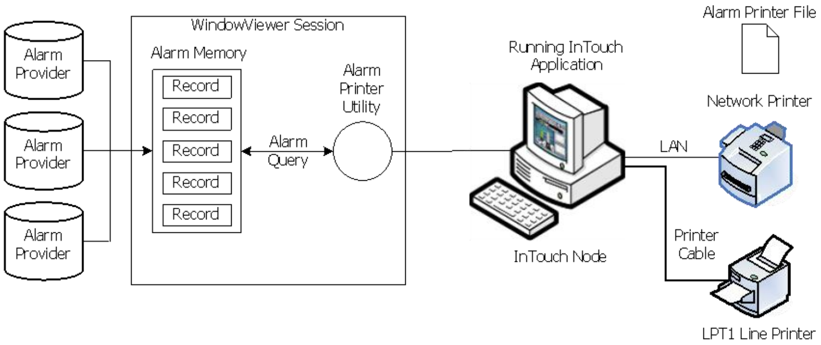
About Printing Alarms

You use the InTouch Alarm Printer utility to print alarms from multiple nodes. You can print alarm records stored in the alarm memory on an event-by-event basis using a dedicated line or network printer. Also, you can use the Alarm Printer to save alarm records to a file.



You can configure the Distributed Alarm system to print certain events on a line printer as they occur. Typically, you print alarms immediately to record information in the event of a catastrophic failure. Generally, you use a dot matrix printer connected through a serial or parallel port directly to the computer running the InTouch application. Windows network printers and laser printers are usually inappropriate for gathering data for catastrophic events because they hold entire pages in memory before actually printing a page.

Configuring Alarm Printing and Logging

You can run multiple instances of the Alarm Printer. Each instance of the Alarm Printer must be configured to print to a different printer and must be configured with a separate alarm query.

You can configure separate instances of Alarm Printer to print alarms in specific priority ranges. For example, one Alarm Printer instance can print only high priority alarms, while another instance prints only low priority alarms. Likewise, you can use one instance of the Alarm Printer to print alarms from one area of the factory while another instance prints alarms from a different area.

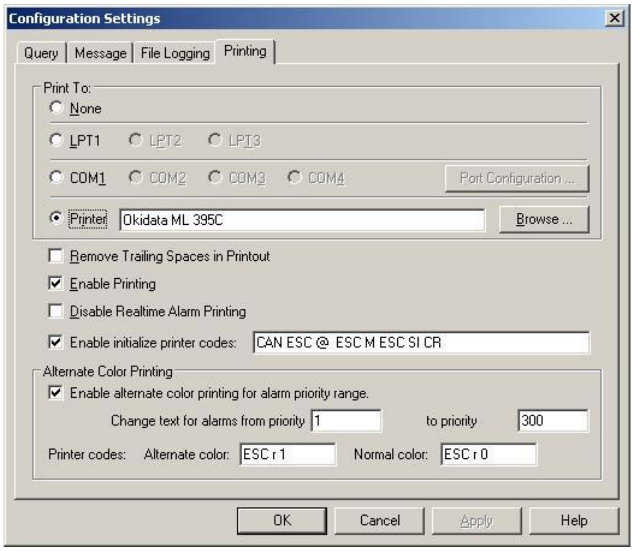
You can save an Alarm Printer configuration to a file, which has the .alc extension. You can create as many configuration files as you want. The Alarm Printer uses an individual configuration file for each instance of Alarm Printer that is running.

Configuring Printer Settings

You must designate a printer to use with the Alarm Printer. Also, you must select if alarms are printed as they occur. Use a dedicated printer for printing alarms. The printer can be connected locally or to a network. Any Windows printer can be used as the output for the Alarm Printer.

To configure the printer settings

1. Open the Alarm Printer utility. Do the following:
    a. In the WindowMaker **Tools** view, expand **Applications**.
    b. Double-click **Alarm Printer**.
2. On the menu bar, click **Configure**. The **Configuration Settings** dialog box appears.
3. Click the **Printing** tab.



Print To:
○ None
○ LPT1 ○ LPT2 ○ LPT3
○ COM1 ○ COM2 ○ COM3 ○ COM4
● Printer: Okidata ML 395C

☐ Remove Trailing Spaces in Printout
☑ Enable Printing
☐ Disable Realtime Alarm Printing
☑ Enable initialize printer codes: CAN ESC @ ESC M ESC SI CR

Alternate Color Printing
☑ Enable alternate color printing for alarm priority range.
Change text for alarms from priority 1 to priority 300
Printer codes: Alternate color: ESC r 1 Normal color: ESC r 0

4. In the **Print To** area, select the connection to the alarm printer.
    - Click **None** to not use a printer.
    - Click **LPT1-3** to use a printer connected by a parallel port to the computer running the InTouch application.
    - Click **COM1-4** to use a printer connected by a serial port to the computer running the InTouch application. Click **Port Configuration** to show the **COM Properties** dialog box and change the default values assigned to the selected COM port.
    - Click **Printer** to use a printer connected through the network to the computer running the InTouch application. In the box, type the name of the printer or click Browse to select an available printer.

Note: If the printer you want does not appear, add the printer using the Windows Add Printer wizard.

5. Select the **Remove Trailing Spaces in Printout** check box to prevent the printer from printing blank lines or empty pages.
6. Select the **Enable Printing** check box to print alarms.

7. Select the **Disable Realtime Alarm Printing** check box to prevent the Alarm Printer from printing alarms as they occur.
8. Optionally, configure print command sequences to initialize the printer with specific settings and to change the print characteristics for alarms in a specified priority range. For more information, see *Configuring Alarm Print Commands* on page 177.
9. Click OK.

Configuring Alarm Print Commands

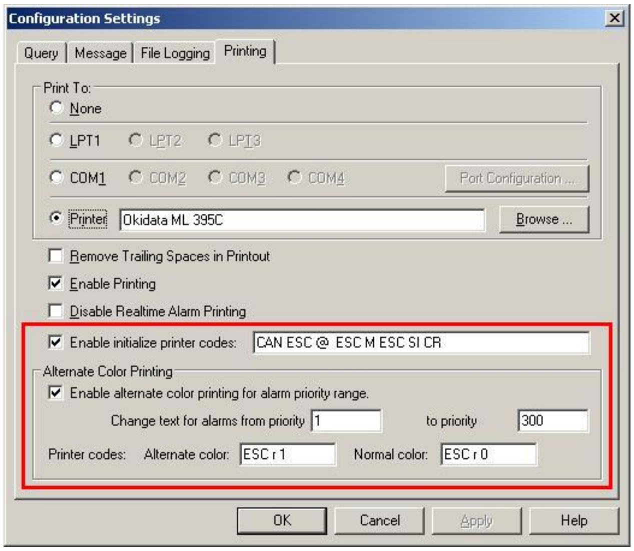
You can configure the Alarm Printer to send a printer command initialization sequence when the printer is first opened (that is, each time the query starts and stops). Printer command initialization sequences can be used to configure printer settings, such as the character pitch and the left and right print margins.

You can also configure alternate and normal print colors so that the print color indicates whether the alarm is in or outside of a specified range of alarm priorities. The alternate and normal color commands do not necessarily have to specify a color. They can also be used to enable/disable double-striking, emphasized printing, underlining, italic, or other differentiating print characteristics to make one set of alarm priorities appear visually distinct from the others.

Note: For monochrome printers, you might find that double-strike printing is much faster than emphasized printing.

Print Command Settings

The **Printing** tab in the **Configuration Settings** dialog box includes settings for specifying printer command sequences.



Print To:
○ None
○ LPT1 ○ LPT2 ○ LPT3
○ COM1 ○ COM2 ○ COM3 ○ COM4
● Printer Okidata ML 395C
□ Remove Trailing Spaces in Printout
☑ Enable Printing
□ Disable Realtime Alarm Printing
☑ Enable initialize printer codes: CAN ESC @ ESC M ESC SI CR
Alternate Color Printing
☑ Enable alternate color printing for alarm priority range.
Change text for alarms from priority 1 to priority 300
Printer codes: Alternate color: ESC r 1 Normal color: ESC r 0

These settings are described in the following table.

Setting	Description
Enable initialize printer codes	Causes the command sequence that is entered in the accompanying box to be sent to the printer each time the query is started and stopped.
Enable alternate color printing for alarm priority range	Select this option to pass the alternate and normal color commands for use with the specified alarm priority range.
Change text for alarms from priority … to priority	Enter the alarm priority range from a low number (representing higher priority alarms) to a higher number (representing lower priority alarms).
Alternate color	The printer command sequence that will be sent each time a row of alarm text is sent to the printer when the alarm priority is in the specified range.
Normal color	The printer command sequence that will be sent each time a row of alarm text is sent to the printer when the alarm priority is not in the specified range.

Sample Printer Command Sequences

As an example, the following printer command sequences are for an Okidata Microline 395C color dot matrix printer. Refer to the documentation that accompanied your printer for its command sequences.

Printer initialization command:

```
CAN ESC @  ESC M ESC SI CR
```

where the commands are as follows:

- CAN – Cancel any remaining data in the printer's internal buffer.
- ESC @ – Reset the printer to menu defaults.
- ESC M – Set the printing to 12 CPI (Elite).
- ESC SI – Set printing to compressed to obtain 20 CPI.
- CR – Move the print head back to the left margin.

Alternate color command that sets the print color to red:

```
ESC r 1
```

Normal color command that sets the print color to black:

```
ESC r 0
```

Printer Command Escape Sequences Syntax

Each printer command escape sequence consists of one or more bytes. Information about these bytes should be available in the printer's documentation or by knowing that the printer can parse ESC/P or ESC/P2 syntax. Information about these syntaxes is publicly available on the Internet.

Generally, there is no limitation on the length of the printer command escape sequence text. The parser interprets the stream of text tokens and converts them to a sequence of contiguous byte values. The byte values are then streamed to the printer, unmodified, at the appropriate time, such as at printer initialization or when the printer setting for the alarm must be modified and restored.

When specifying the printer command escape sequence as text, each byte character must be separated by a space character. The space character indicates to the parser where a token begins and ends. For example, if the printer's draft mode can be activated by ESCx0, then the command sequence is entered as:

```
ESC x 0
```

If you need to send a space character to the printer, then use the abbreviation SP to represent that byte.

Note: The parser is case-sensitive, so all abbreviations must be entered in capital letters. For example, use ESC, not esc or Esc.

The following types of items can be included in the command sequence:

- The abbreviated name of the control characters
- The number, letter, or other printable character
- The decimal number for the ASCII character
- The hexadecimal number for the ASCII character

For a list of the hexadecimal or decimal numbers for the control and printable characters, refer to a publicly available ASCII table.

Entering Names of Control Characters

You can enter the names of control characters, as these are not easily typed from the keyboard. For a list of control character names, refer to the Abbr column of a publicly available ASCII table. The only character that is not typically listed in an ASCII table is the space character, which must be entered as SP.

Note: The parser does not process common C language escape characters (for example, \r, \n, and \t).

Entering Printable Characters

Enter any printable character by typing it in the box. The only exception is the space character (hexadecimal 0x20, decimal 32), which must be entered as SP. The character's value is interpreted as the number that represents it in the ASCII table, and that is the value sent to the printer.

For a list of printable characters, refer to a publicly available ASCII table.

Entering a Character's Decimal Number

Enter the character's decimal number by typing it in the box. The maximum decimal value that can be entered is 255 (hexadecimal 0xFF). There is no warning if you enter a decimal number that is too large, such as 497; it will cause 255 to be returned. Negative numbers are not supported.

Entering a Character's Hexadecimal Number

Enter the character's hexadecimal number by typing it in the box. The allowable range of values is 0x00 to 0xFF.

Configuring Which Alarms to Print

The Alarm Printer queries the alarm memory to select records to print or save to a log file. The query selects records from the internal alarm memory based upon:

- Alarm priority
- Current alarm state (unacknowledged/acknowledged)
- Alarm group membership

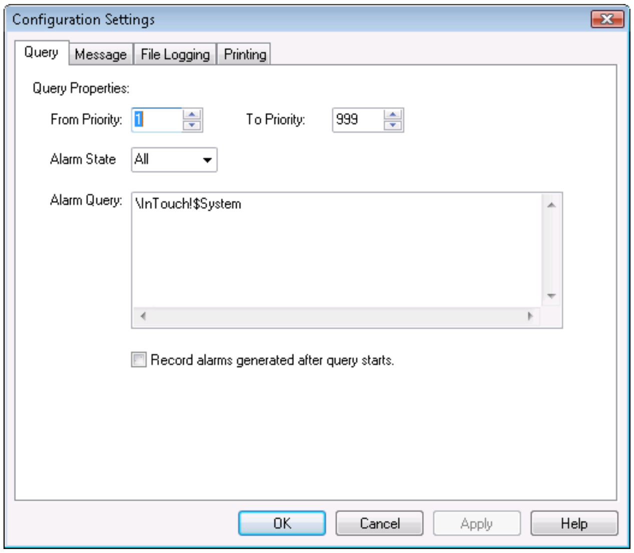
Each alarm has an assigned priority number that represents the severity of the alarm. An alarm priority ranges from 1 to 999. The most severe alarm is assigned a priority of 1. The least severe alarm is assigned a priority of 999.

If a network or printer connection fails, the Alarm Printer does not reprint all alarms. The Alarm Printer only prints the alarms that have not been printed before the connection failure.

To configure which alarms to print

1. Open the Alarm Printer utility. Do the following:
    a. In the WindowMaker **Tools** view, expand **Applications**.
    b. Double-click **Alarm Printer**.
2. On the menu bar, click **Configure**. The **Configuration Settings** dialog box appears.

3. Click the **Query** tab.



Query Properties:

From Priority: 1

To Priority: 999

Alarm State: All

Alarm Query: \InTouch!$System

□ Record alarms generated after query starts.

4. In the **From Priority** box, enter the highest priority alarm value (1 to 999).
5. In the **To Priority** box, enter the lowest priority alarm value (1 to 999).
6. In the **Alarm State** list, click the alarm state.

Click	To show
All	All alarms.
Ack	Only acknowledged alarms.
Unack	Only unacknowledged alarms.

7. In the **Alarm Query** box, type one or more alarm queries. You can specify one or more alarm providers and groups. Use blank spaces to separate the queries.
8. Select the **Record alarms generated after query starts** check box to only include alarms that occur after the query starts. The Alarm Printer ignores alarms records that are in the alarm memory and were triggered before the Alarm Printer started querying.
9. Click **OK**.

Configuring the Format of Print and File Output

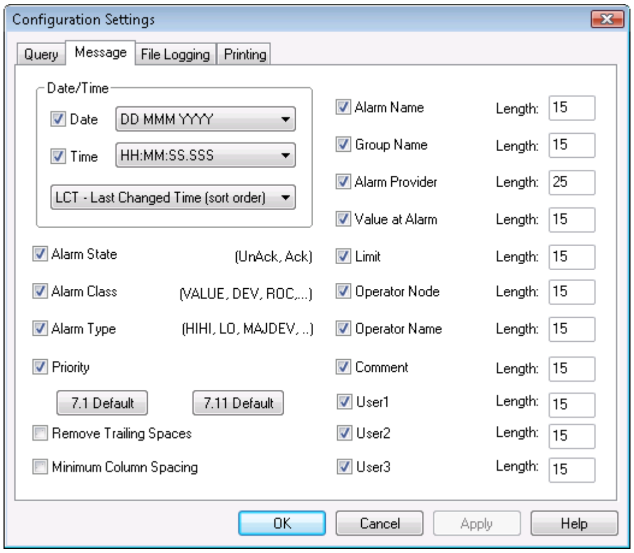
Each option you select appears as a separate field in the printed output. Fields containing data exceeding the specified maximum field length are truncated to those limits.

To configure the format of alarm print and file output

1. Open the Alarm Printer utility. Do the following:
    a. In the WindowMaker **Tools** view, expand **Applications**.
    b. Double-click **Alarm Printer**.

2. On the menu bar, click **Configure**. The **Configuration Settings** dialog box appears.

3. Click the **Message** tab.



Date/Time

☑ Date DD MMM YYYY

☑ Time HH:MM:SS.SSS

LCT - Last Changed Time (sort order)

☑ Alarm State (UnAck, Ack)

☑ Alarm Class (VALUE, DEV, ROC,...)

☑ Alarm Type (HIHI, LO, MAJDEV, ..)

☑ Priority

□ Remove Trailing Spaces

□ Minimum Column Spacing

☑ Alarm Name	Length: 15
☑ Group Name	Length: 15
☑ Alarm Provider	Length: 25
☑ Value at Alarm	Length: 15
☑ Limit	Length: 15
☑ Operator Node	Length: 15
☑ Operator Name	Length: 15
☑ Comment	Length: 15
☑ User1	Length: 15
☑ User2	Length: 15
☑ User3	Length: 15

4. In the **Date/Time** area, select the **Date** check box, and then select a date format from the list. The listed date formats include the following components:

Option	Description
DD	Two-digit day of the month (01-31)
MM	Two-digit month of the year (01-12)
YY	Last two digits of the year
YYYY	Four-digit year
MMM	Three-character abbreviation of the month

5. Select the **Time** check box and select a time format from the list. The listed formats included the following time components:

Option	Description
AP	Selects the AM/PM time format. For example, 3:00 PM is shown as 3:00 PM. A time without this designation defaults to 24 hour military time format. For example, 3:00 PM is shown as 15:00.
HH	Two-digit hour of the day (00-23 or 01-12) when the alarm/event occurred.
MM	Two-digit minute of the hour (00-59) when the alarm/event occurred.
SS	Two-digit second of the minute (00-59) when the alarm/event occurred.
SSS	Three-digit millisecond of the second when the alarm/event occurred.

6. Select the order that alarms appear in the alarm record according to the onset time of the alarm:

Option	Description
OAT	(Original Alarm Time) The date/time stamp of the onset of the alarm.
LCT	(Last Changed Time) The date/time stamp of the most recent change of status for the instance of the alarm: onset of the alarm, change of sub-state, return to normal, or acknowledgment.
LCT But OAT on ACK	(Last Changed Time, but Original Alarm Time on acknowledgement) The last changed time is used while the alarm is unacknowledged, then original alarm time is used after the alarm has been acknowledged.

7. Select the alarm information to be printed.

Option	Description
Alarm State	Prints the alarm state. For example, UnAck, Ack.
Alarm Class	Prints the alarm class. For example, VALUE, DEV, ROC.
Alarm Type	Prints the alarm type. For example, HIHI, LO, MAJDEV.
Priority	Prints the alarm priority (1-999).
7.1 Default (button)	Selects the default settings for the Alarm Printer utility for InTouch version 7.1.
7.11 Default (button)	Selects the default settings for the Alarm Printer utility for InTouch version 7.11.
Remove Trailing Spaces	Removes the extra trailing spaces from a printed field when the length of the actual field value is less than the value configured for that field.
Minimum Column Spacing	Reduces the spacing between columns so that more fields can fit on the printed page.
Alarm Name	Prints the alarm name (tag). In the Length box, type the number of characters (64 characters maximum) for the alarm name.
Group Name	Prints the alarm group name. In the Length box, type the number of characters (64 characters maximum) for the alarm group name.
Alarm Provider	Prints the name of the alarm provider. In the Length box, type the number of characters (64 characters maximum) for the alarm provider name.

Option	Description
Value at Alarm	Prints the value of the tag. In the Length box, type the number of characters (32 characters maximum) for the alarm value.
Limit	Prints the tag's alarm limit. In the Length box, type the number of characters (32 characters maximum) allowed for alarm limit. The number should be large enough to provide the desired level of precision.
Operator Node	Prints the operator node associated with the alarm condition. In the Length box, type the number of characters (64 characters maximum) allowed for the operator's node. In a Terminal Services environment, this is the name of the client computer that the respective operator established the Terminal Services session from. If the node name can't be retrieved, the node's IP address is used instead.
Operator Name	Prints the operator name associated with the alarm condition. In the Length box, type the number of characters (16 characters maximum) allowed for the operator's name.
Comment	Prints the alarm comment associated with the tag. In the Length box, type the number of characters (131 characters maximum) allowed for the comment.
User1	Prints the numerical values of User Defined Number 1 corresponding to the alarm.
User2	Prints the numerical values of User Defined Number 2 corresponding to the alarm.
User3	Prints the string value of the user-defined string property associated with the alarm. The maximum number of characters is 131.

8. Click **Apply**.

Configuring Log Files for Alarms

You can log alarm records to a file. By default, the Alarm Printer assigns names to log files based upon the following naming convention:

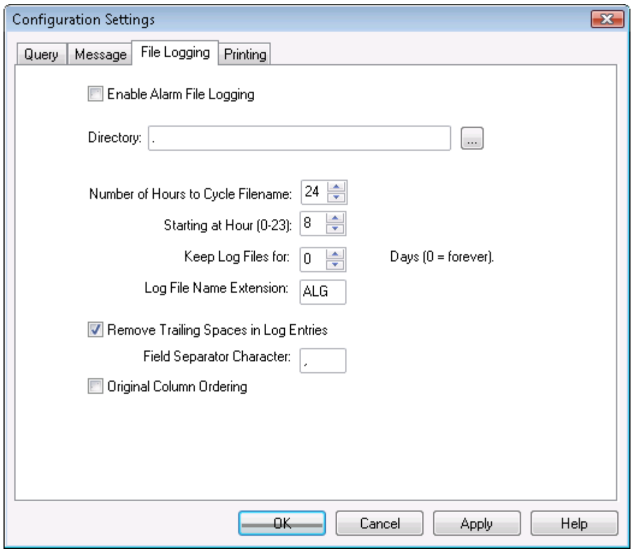
YYMMDDHH.ALG

Notation	Description
YY	Last two digits of the year when the log file is created.
MM	Two-digit number of the month (01-12) when the log file is created.

Notation	Description
DD	Two-digit day of the month (01-31) when the log file is created.
HH	Two-digit hour of the day (00-23) when the log file is created.

To configure alarm record logging

1. Open the Alarm Printer utility. Do the following:
    a. In the WindowMaker **Tools** view, expand **Applications**.
    b. Double-click **Alarm Printer**.
2. On the menu bar, click **Configure**. The **Configuration Settings** dialog box appears.
3. Click the **File Logging** tab.



□ Enable Alarm File Logging

Directory: .

Number of Hours to Cycle Filename: 24

Starting at Hour (0-23): 8

Keep Log Files for: 0 Days (0 = forever).

Log File Name Extension: ALG

☑ Remove Trailing Spaces in Log Entries

Field Separator Character: ,

□ Original Column Ordering

4. Select the **Enable Alarm File Logging** check box to save alarm records to log files.
5. In the **Directory** box, type the path or browse to a folder location to save the alarm log files.
6. In the **Number of Hours to Cycle Filename** box, enter the number of hours worth of alarm records to save to an individual log file.

    Valid entries are 1 to 24. If your InTouch application runs continuously, select a file logging interval that creates a set of equal length daily log files. For example, setting **Number of Hours to Cycle Filename** to 6 creates 4 equal length daily log files.
7. In the **Starting at Hour** box, enter the starting hour to begin logging alarm records to a file each day.

    Valid entries are 0 to 23.

    For example, an oil refinery operates three daily work shifts. The first shift begins at 06:00. Management wants alarm records logged for each shift. To do this, enter 8 for the **Number of Hours to Cycle Filename** option. Enter 6 for the **Starting at Hour (0-23)** option. The Alarm Printer creates a log file from 06:00 to 14:00, another from 14:00 to 22:00, and a third from 22:00 to 06:00.

8. In the **Keep Log Files for** box, enter the number of days to retain log files.

   The Alarm Printer saves log files for the number of specified days plus the current day. The Alarm Printer deletes log files older than the retention period. To save log files indefinitely, enter 0.

9. In the **Log File Name Extension** box, accept the default ALG file name extension or assign another three-character extension to log files.

   If you use a .csv extension, you can import the log file directly into Excel or Notepad.

10. To remove spaces at the end of entries within a log file, select the **Remove Trailing Spaces in Log Entries** check box.

    You can also specify a field separator character placed at the end of each record in the log file.

11. Select the **Original Column Ordering** check box to maintain the same order from the alarm display to log file records.

12. Click **Apply**.

Saving and Loading Configuration Files

When you start the Alarm Printer from WindowMaker, the **Alarm Printer** dialog box shows the default configuration settings. These configuration settings are saved in an alarm configuration file (.alc).

You can save your printer configuration settings to a file that can be loaded before printing alarms.

A specific alarm configuration file can be shown if it is opened in run time from the command prompt or by double-clicking its *.alc file name.

To create a new Alarm Printer configuration file

1. Open the Alarm Printer utility. Do the following:
   a. In the WindowMaker **Tools** view, expand **Applications**.
   b. Double-click **Alarm Printer**.
2. On the **File** menu, click **New** to show the Alarm Printer with its default values.
3. On the menu bar, click **Configure**. The **Configuration Settings** dialog box appears.
4. Configure the alarm settings.
5. On the **File** menu, select **Save**.

To edit an existing Alarm Printer configuration file

1. On the File menu, select Open.
2. Select the Alarm Printer Configuration file that you want to edit.
3. Edit the file.
4. On the File menu, select Save. Select Save as to save the changes to a new file without changing the existing file.

About Printing Alarms With the Alarm Printer

Each query logs all of the alarms specified in the Alarm Printer configuration file (.alc) that is currently open. If no file has been specified, the settings currently selected during Alarm Printer configuration are used.

You can run multiple queries with Alarm Printer. Each query uses different parameters and is associated with a separate instance of the Alarm Printer. If two instances of Alarm Printer are running the same query, the entries are duplicated.

While Alarm Printer is running, you can manually start or stop queries. Be sure that you have printing enabled.

To start an alarm query

- On the **Query** menu, click Start/Stop.

To stop an alarm query

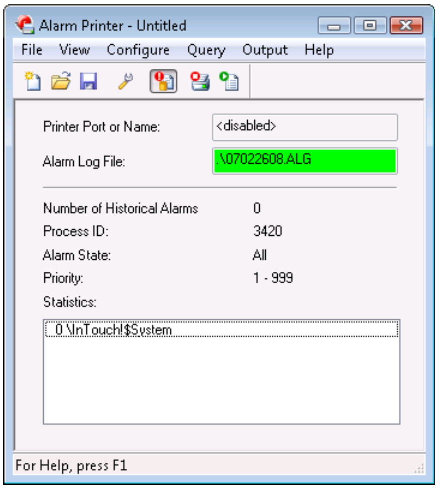
- On the **Query** menu, click Start/Stop.

Logging Alarms to a File

You can use the Alarm Printer to log alarm records to a file. You should have already configured logging from the **Configuration Settings** dialog box.

To log alarms to a file

1. Open the Alarm Printer utility.
   a. In the WindowMaker **Tools** view, expand **Applications**.
   b. Double-click **Alarm Printer**.
2. If necessary, configure the query to collect alarm records for logging.
3. Click the **File Logging** button.
4. Run an alarm query.



Printer Port or Name: <disabled>
Alarm Log File: .\07022608.ALG

Number of Historical Alarms 0
Process ID: 3420
Alarm State: All
Priority: 1 - 999
Statistics:
0 \InTouch!$System

Alarm records collected by the query are written to the configured log file.

Starting Alarm Printer with a Specific Configuration

You can automatically start the Alarm Printer and open a specific file when your system starts up by using the following command in a batch file:

```
ALMPRT.EXE MYQUERY.ALC
```

Where, `MYQUERY.ALC` is the name of the Alarm Printer configuration file that opens. Specifying the .exe file name extension is optional.

Make sure that the batch file switches to the folder where the InTouch HMI is installed.

To prevent the loss of any query data due to a system inadvertently being shut down and restarted, you can automatically start the Alarm Printer and automatically run a specific query by running the following command from a batch file:

```
ALMPRT.EXE -q MYQUERY.ALC
```

By using the `-q` in the command, your query runs automatically when the system starts up.

Controlling the Alarm Printer Using Scripting

You can use Alarm Printer functions in scripts to control alarm printing.

Alarm printer functions return an integer error code that indicates whether the function completed successfully or not. The following table shows the error codes.

Error Code	Error Message
0	Success
1	Instance not found or not running
2	Interface not initialized
3	Failure to access virtual memory
4	Invalid error code
5	Too many instances already running
6	Result string would be too long
7	Invalid instance index passed to the function
8	Failed to post the message to the alarm printer application
9	Failed to wait for a response from the alarm printer application
20	To priority must be equal to or greater than From priority

Error Code	Error Message
21	Invalid priority value
22	Invalid alarm state
23	Failed to execute the command because the query is running
24	Query string is not valid
25	Invalid query processing state
26	Invalid print state selector
27	Command received by the alarm printer window is not recognized
28	Query could not be started

Stopping and Starting an Alarm Printer Instance or Query

Use the following functions to start and stop the Alarm Printer instance and the alarm query.

- *APUStartInstance() Function* on page 189
- *APUStartQuery() Function* on page 190
- *APUStopInstance() Function* on page 191
- *APUStopQuery() Function* on page 191

APUStartInstance() Function

Starts an instance of the Alarm Printer in a minimized state with values specified from a configuration file.

Category

View

Syntax

```
[Result=] APUStartInstance(sFilePath, iTagInstance);
```

Arguments

sFilePath
Full path to a configuration file (input string).

iTagInstance
Integer tag. The function returns an instance number to it if the function executes successfully.

Remarks

You can start up to sixteen instances of the Alarm Printer. This function writes the instance number (0 - 15) to the iTagInstance parameter. The instance number increments when a new Alarm Printer instance starts.

This instance number can be used by other Alarm Printer functions to identify the Alarm Printer instance.

This function returns 0 or, in the case of error, an error code.

The Alarm Printer program does not automatically begin processing alarms from the alarm memory. Use the **APUStartQuery()** function to begin processing data from the alarm memory for the instance.

Example

```
Status = APUStartInstance("c:\MyAlarmCfg\Area1Alarms.alc", Inst);
```

See Also

APUStartQuery(), APUStopInstance(), APUStopQuery()

APUStartQuery() Function

Sets the date and time limits for records to be processed from the alarm memory and then starts the query.

Category

View

Syntax

```
[Result=] APUStartQuery(iInstance, iYear, iMonth, iDay, iHour, iMinute);
```

Arguments

iInstance
The instance of Alarm Printer (0 to 15).

iYear
The number of the year.

iMonth
The number of the month.

iDay
The day of the month.

iHour
The hour number.

iMinute
The minute number.

Remarks

An error occurs if you try to start a query when a query is already running.

If you set all date and time values to 0, all alarms are printed. This is because 0 is interpreted as January 01, 1900 at midnight. The time and dates specified are in local time. A value of -1 for the year sets the date to the current time that the command is processed.

Returns an integer error code.

Example

```
Status = APUStartQuery(Inst,2007,4,16,22,12);
```

See Also

APUStartInstance(), APUStopInstance(), APUStopQuery()

APUStopInstance() Function

Stops a specified instance of the Alarm Printer. Any further addition of records to be printed stops, any currently executing print query stops, and the instance of the program closes.

Category

View

Syntax

```
[Result=] APUStopInstance(iInstance);
```

Arguments

iInstance
The instance of Alarm Printer (0 to 15).

Remarks

Returns an integer error code.

Example

```
Status = APUStopInstance(5);
```

See Also

APUStartInstance(), APUStartQuery(), APUStopQuery()

APUStopQuery() Function

Requests the specified instance to stop running its query. The application remains running, but it does not process any queries. A call to **APUStartQuery()** can cause the instance to start querying.

Category

View

Syntax

```
[Result=] APUStopQuery(iInstance);
```

Arguments

iInstance
The instance of Alarm Printer (0 to 15).

Remarks

Returns an integer error code.

Example

```
Status = APUStopQuery(5);
```

See Also

APUStartInstance(), APUStartQuery(), APUStopInstance()

Querying Alarm Query Information

Use the following functions to retrieve query parameters based on tag priorities and values set within the Alarm Printer configuration file.

- *APUGetAlarmGroupText() Function* on page 192
- *APUGetQueryFromPriority() Function* on page 193
- *APUGetQueryToPriority() Function* on page 193
- *APUGetConfigurationFilePath() Function* on page 194
- *APUGetPrinterJobCount() Function* on page 194
- *APUGetQueryAlarmState() Function* on page 195
- *APUGetQueryProcessingState() Function* on page 196

APUGetAlarmGroupText() Function

Gets the Alarm Query alarm group text.

Category

View

Syntax

```
[Result=] APUGetAlarmGroupText(iInstance, sTagGroup);
```

Arguments

iInstance
The instance of Alarm Printer (0 to 15).

sTagGroup
Text - alarm group

Remarks

The initial alarm group text is read from the .alc configuration file that the Alarm Printer with the specified instance is using. The alarm group text is passed to the sTagGroup parameter into an InTouch message tag.

Returns an integer error code.

Example

The TagGroup message tag can contain the following value after the function is run: \intouch!$system

```
Status = APUGetAlarmGroupText(Inst,TagGroup);
```

See Also

APUGetConfigurationFilePath(), APUGetPrinterJobCount(), APUGetQueryAlarmState(), APUGetQueryFromPriority(), APUGetQueryProcessingState(), APUGetQueryToPriority()

APUGetQueryFromPriority() Function

Gets the From Priority value for a query.

Category

View

Syntax

```
[Result=] APUGetQueryFromPriority(iInstance, iTagPriority);
```

Arguments

iInstance
The instance of Alarm Printer (0 to 15).

iTagPriority
An integer tag that receives the From Priority value.

Remarks

The initial priority is read from the .alc file that the Alarm Printer with the specified instance is using. The From Priority value is passed to the iTagPriority parameter into an InTouch integer tag.

Returns an integer error code.

Example

In this example, FromPri is an integer tag that contains the From Priority value, such as 1.

```
Status = APUGetQueryFromPriority(Inst, FromPri);
```

See Also

APUGetAlarmGroupText(), APUGetConfigurationFilePath(), APUGetPrinterJobCount(), APUGetQueryAlarmState(), APUGetQueryProcessingState(), APUGetQueryToPriority()

APUGetQueryToPriority() Function

Gets the To Priority from the query.

Category

View

Syntax

```
[Result=] APUGetQueryToPriority(iInstance,iPriority);
```

Arguments

iInstance
The instance of Alarm Printer (0 to 15).

iPriority
An integer tag that receives the To Priority value.

Remarks

Another query cannot be running at the same time as the script that includes the APUGetQueryToPriority() function. The To Priority value is written to the iPriority parameter of the function, which is an integer tag.

Returns an integer error code.

Example

The integer tag ToPri receives the To Priority value, such as 999.

```
Status = APUGetQueryToPriority(Inst,ToPri);
```

See Also

APUGetAlarmGroupText(), APUGetConfigurationFilePath(), APUGetPrinterJobCount(), APUGetQueryAlarmState(), APUGetQueryFromPriority(), APUGetQueryProcessingState()

APUGetConfigurationFilePath() Function

Returns the full file path of the .alc configuration file used for a query.

Category

View

Syntax

```
[Result=] APUGetConfigurationFilePath(iInstance, sTagFilePath);
```

Arguments

iInstance
The instance of Alarm Printer (0 to 15).

sTagFilePath
A message tag to retrieve the name of the file path to the configuration file the Alarm Printer instance is using.

Remarks

The file path text is returned to an message tag that you can specify as sTagFilePath parameter of this function.

Returns an integer error code.

Example

The CfgFilePath message tag receives the file path of the configuration file associated with the Alarm Printer instance contained in the Inst integer tag. For example: c:\MyAlarmCfg\Area1Alarms.alc

```
Status = APUGetConfigurationFilePath(Inst, CfgFilePath);
```

See Also

APUGetAlarmGroupText(), APUGetPrinterJobCount(), APUGetQueryAlarmState(), APUGetQueryFromPriority(), APUGetQueryProcessingState(), APUGetQueryToPriority()

APUGetPrinterJobCount() Function

Returns the most recent Windows printer status job count for the printer used by this instance.

Category

View

Syntax

```
[Result=] APUGetPrinterJobCount(iInstance, iTagCount);
```

Arguments

iInstance
The instance of Alarm Printer (0 to 15).

iTagCount
An integer tag that receives the count value.

Remarks

This function returns the count value in the iTagCount parameter, which is an integer tag.

The results are not current unless a query is running. The results are not current unless an alarm has been printed - the job count is typically updated when the printer is initially opened, and then each time an alarm line is printed.

The returned job count value is only valid for Windows printers and does not have much meaning for printers associated with a parallel or serial port.

Returns an integer error code.

Example

PJCount is an integer tag that receives the count value from the specified instance.

```
Status = APUGetPrinterJobCount(Inst, PJCount);
```

See Also

APUGetAlarmGroupText(), APUGetConfigurationFilePath(), APUGetQueryAlarmState(), APUGetQueryFromPriority(), APUGetQueryProcessingState(), APUGetQueryToPriority()

APUGetQueryAlarmState() Function

Returns the alarm state for the query.

Category

View

Syntax

```
[Result=] APUGetQueryAlarmState(iInstance, iTagState);
```

Arguments

iInstance
The instance of Alarm Printer (0 to 15).

iTagState

An integer tag that receives the alarm state of the query associated with the specified instance. The value has following meanings:

0 = All

1 = Acknowledged

2 = Unacknowledged

Remarks

The initial alarm state is read from the .alc file. This function returns it in the iTagState parameter of the function which is an integer tag.

Returns an integer error code.

Example

AlmState is an integer tag that contains 0, 1 or 2.

```
Status = APUGetQueryAlarmState(Inst,AlmState);
```

See Also

APUGetAlarmGroupText(), APUGetConfigurationFilePath(), APUGetPrinterJobCount(), APUGetQueryFromPriority(), APUGetQueryProcessingState(), APUGetQueryToPriority()

APUGetQueryProcessingState() Function

Returns the status of the alarm query processing.

Category

View

Syntax

```
[Result=] APUGetQueryProcessingState(iInstance, iTagState);
```

Arguments

iInstance
The instance of Alarm Printer (0 to 15).

iTagState

An integer tag that receives the processing state from the function. It has following meaning:

0 = Stop

1 = Start

Remarks

This function returns an integer value to the iTagState parameter, which is an integer tag.

Returns an integer error code.

Example

ProcState is an integer tag that is set to 0 if the query is not running, or 1 if the query is running.

```
Status = APUGetQueryProcessingState(Inst, ProcState);
```

See Also

APUGetAlarmGroupText(), APUGetConfigurationFilePath(), APUGetPrinterJobCount(), APUGetQueryAlarmState(), APUGetQueryFromPriority(), APUGetQueryToPriority()

Querying Instance Information

Use the following functions to return the current status of an instance of the Alarm Printer.

- *APUFindAlarmGroupInstance() Function* on page 197
- *APUFindFileInstance() Function* on page 197
- *APUFindPrinterInstance() Function* on page 198
- *APUGetInstanceCount() Function* on page 199
- *APUIsInstanceUsed() Function* on page 199

APUFindAlarmGroupInstance() Function

Returns the first instance of the Alarm Printer using the specified alarm group string.

Category

View

Syntax

```
[Result=] APUFindAlarmGroupInstance(sGroup, iInstance);
```

Arguments

sGroup
The name of the alarm group to be found among the instances.

iInstance
An integer tag that receives the value of a found instance that uses the specified group name.

Remarks

This function returns the instance number to an integer tag as the iInstance parameter. The initial alarm group string is read from the .alc file. If no instance is found, the function returns 1 as the error code (no instance available) and writes 0 to the integer tag parameter.

Returns an integer error code.

Example

FoundInstance is an integer tag that receives the number of the first instance found that uses the $System as its query.

```
Status = APUFindAlarmGroupInstance("$System", FoundInstance);
```

See Also

APUFindFileInstance(), APUFindPrinterInstance(), APUGetInstanceCount(), APUIsInstanceUsed()

APUFindFileInstance() Function

Finds the first instance of the Alarm Printer using the specified .alc configuration file.

Category

View

Syntax

```
[Result=] APUFindFileInstance(sFilePath, iInstance);
```

Arguments

sFilePath
The path of the .alc configuration file for which the instance is to be found.

iInstance
An integer tag that receives the number of the instance.

Remarks

This function returns the instance number to an integer tag as the iInstance parameter. Use this function to initially obtain the desired instance of the Alarm Printer. The file path string match is not case-sensitive.

If no instance is found, the function returns 1 as the error code (no instance available) and writes 0 to the integer tag parameter.

Returns an integer error code.

Example

InstFound is an integer tag that receives the number of the first instance that uses the configuration file c:\MyAlarmCfg\Area1Alarms.alc.

```
Status = APUFindFileInstance("c:\MyAlarmCfg\Area1Alarms.alc", InstFound);
```

See Also

APUFindAlarmGroupInstance(), APUFindPrinterInstance(), APUGetInstanceCount(), APUIsInstanceUsed()

APUFindPrinterInstance() Function

Finds the first instance of the Alarm Printer using the specified printer name or port.

Category

View

Syntax

```
[Result=] APUFindPrinterInstance(sPrinter, iInstance);
```

Arguments

sPrinter
The name of the printer for which the instance is to be found.

iInstance
An integer tag that receives the number of the instance.

Remarks

This function returns the instance number to an integer tag as the iInstance parameter. Use this function to initially obtain the desired instance of an Alarm Printer. The printer name is stored and read from the .alc file. The printer name string match is not case-sensitive. If no instance is found, the function returns 1 as the error code (no instance available) and writes 0 to the integer tag parameter.

Returns an integer error code.

Example

FoundInst is an integer tag that receives the number of the first instance that uses LPT1 as printer name in its associated .alc file.

```
Status = APUFindPrinterInstance("LPT1", FoundInst);
```

See Also

APUFindAlarmGroupInstance(), APUFindFileInstance(), APUGetInstanceCount(), APUIsInstanceUsed()

APUGetInstanceCount() Function

Returns the number of running instances of the Alarm Printer, up to a maximum of 16 instances.

Category

View

Syntax

```
[Result=] APUGetInstanceCount(iCount);
```

Arguments

iCount
An integer tag that receives the number of instances.

Remarks

This function returns the number of instances to an integer tag as parameter. Any instances beyond the first sixteen running simultaneously are not dynamically controlled nor can their status be obtained.

Returns an integer error code.

Example

ICount is an integer tag. A run-time value of 7 means that there are currently seven instances of Alarm Printer running.

```
Status = APUGetInstanceCount( iCount );
```

See Also

APUFindAlarmGroupInstance(), APUFindFileInstance(), APUFindPrinterInstance(), APUIsInstanceUsed()

APUIsInstanceUsed() Function

Returns a discrete value that indicates the instance is currently in use.

Category

View

Syntax

```
[Result=] APUIsInstanceUsed(iInstance);
```

Arguments

iInstance
The number of an instance of Alarm Printer (0 to 15).

Remarks

The result is either 0 or 1:

0 = instance is not used.

1 = instance is used.

Example

InUse is a discrete tag that is set to true (1), if instance 5 is in use, or set to false (0), if instance 5 is not in use.

```
InUse = APUIsInstanceUsed(5);
```

See Also

APUFindAlarmGroupInstance(), APUFindFileInstance(), APUFindPrinterInstance(), APUGetInstanceCount()

Querying Printer Information

Use the following functions to return the status of the Alarm Printer.

- *APUGetPrinterName() Function* on page 200
- *APUGetPrinterStatus() Function* on page 201

APUGetPrinterName() Function

Returns the Windows printer name or port name of the printer used by this instance.

Category

View

Syntax

```
[Result=] APUGetPrinterName(iInstance, sTagPrinter);
```

Arguments

iInstance
The number of the Alarm Printer instance (0 to 15).

sTagPrinter
A message tag that receives the printer name or port name of the configuration associated with the specified instance.

Remarks

This function returns the value NONE if no printer is configured for an instance. The printer name is stored and read from the .alc file. This function returns the printer name or port name to a message tag as the sTagPrinter parameter.

Returns an integer error code.

Example

PrtName is a message tag that receives the printer name or port name of the configuration associated with instance 3 of Alarm Printer.

```
Status = APUGetPrinterName(3,PrtName);
```

See Also

APUGetPrinterStatus()

APUGetPrinterStatus() Function

Returns the most recent status of the Windows printer used by this instance.

Category

View

Syntax

```
[Result=] APUGetPrinterStatus(iInstance, iSelector, iTagStatus);
```

Arguments

iInstance
The instance of Alarm Printer (0 to 15).

iSelector
An integer value specifying the following:

0 = Get status for Alarm Printer Error

1 = Get status for Alarm Printer No Paper

2 = Get status for Alarm Printer Offline

3 = Get status for Alarm Printer Overflow

iTagStatus
An integer or real tag that receives the status of the printer associated with specified instance number and the type of selection made by the iSelector parameter.

Remarks

This function returns the printer status to an integer or real tag as the iTagStatus parameter. The results are not current unless a query is running and an alarm has been printed. The status typically updates when the printer initially opens, and then each time an alarm line prints.

This status information is being queried to the printer based on Microsoft or Windows driver standards. Not all printer manufacturers follow these standards. Therefore, not all printers return status information.

Returns an integer error code.

Example

PrtStat is an integer tag that receives the "Printer Offline" status from the printer associated with instance 5.

```
Status = APUGetPrinterStatus(5, 2, PrtStat);
```

See Also

APUGetPrinterName()

Setting Alarm Query Information

Use the following functions to set parameters used in the Alarm Printer query.

- *APUSetAlarmGroupText() Function* on page 202
- *APUSetQueryAlarmState() Function* on page 202
- *APUSetQueryFromPriority() Function* on page 203
- *APUSetQueryToPriority() Function*
- *APUSetTimeoutValues() Function* on page 204

APUSetAlarmGroupText() Function

Sets the Alarm Query alarm group text.

Category

View

Syntax

```
[Result=] APUSetAlarmGroupText(iInstance, sGroup);
```

Arguments

iInstance
The instance of Alarm Printer (0 to 15).

sGroup
Alarm group text.

Remarks

A query cannot be running for this function to succeed.

Returns an integer error code.

Example

This example sets the query of the Alarm Printer instance 1 to \InTouch!GroupA.

```
Status = APUSetAlarmGroupText(1, "\intouch!GroupA");
```

See Also

APUSetQueryAlarmState(), APUSetQueryFromPriority(), APUSetQueryToPriority(), APUSetTimeoutValues()

APUSetQueryAlarmState() Function

Sets the alarm state for the query.

Category

View

Syntax

```
[Result=] APUSetQueryAlarmState(iInstance, iState);
```

Arguments

iInstance
The instance of Alarm Printer (0 to 15).

iState
An integer with following possible values:

0 = All

1 = Acknowledged

2 = Unacknowledged

Remarks

A query cannot be running simultaneously while running a script using the **APUSetQueryAlarmState()** function.

Returns an integer error code.

Example

This example sets the query of the Alarm Printer instance 3 to query for acknowledged alarms only.

```
Status = APUSetQueryAlarmState(3, 1);
```

See Also

APUSetAlarmGroupText(), APUSetQueryFromPriority(), APUSetQueryToPriority(), APUSetTimeoutValues()

APUSetQueryFromPriority() Function

Sets the lower boundary or from priority of an alarm query.

Category

View

Syntax

```
[Result=] APUSetQueryFromPriority(iInstance, iPriority);
```

Arguments

iInstance
The instance of Alarm Printer (0 to 15).

iPriority
An integer value for the From Priority (1 to 999).

Remarks

A query cannot be running for this function to succeed.

Returns an integer error code.

Example

This example sets the From Priority value of the query associated with the instance value of the Inst integer tag to the value of the FromPri integer tag.

```
Status = APUSetQueryFromPriority(Inst, FromPri);
```

See Also

APUSetAlarmGroupText(), APUSetQueryAlarmState(), APUSetQueryToPriority(), APUSetTimeoutValues()

APUSetQueryToPriority() Function

Sets the To Priority for the query.

Category

View

Syntax

```
[Result=] APUSetQueryToPriority(iInstance, iPriority);
```

Arguments

iInstance
The instance of Alarm Printer (0 to 15).

iPriority
An integer value for the To Priority in the range of 1 to 999. It should also be set higher than or equal to the From Priority value of the same query of the specified instance.

Remarks

The To priority must be equal to or greater than the From priority to set a valid alarm priority range. A script containing the **APUSetQueryToPriority()** function cannot run at the same time as a query.

Returns an integer error code.

Example

This example sets the To Priority value of the query associated with the instance 0 to 240.

```
Status = APUSetQueryToPriority(0,240);
```

See Also

APUSetAlarmGroupText(), APUSetQueryAlarmState(), APUSetQueryFromPriority(), APUSetTimeoutValues()

APUSetTimeoutValues() Function

The **APUSetTimeoutValues()** function sets time-out intervals in seconds. A time-out interval controls how many errors caused by memory access or failing to obtain valid responses are observed while program is running.

The default memory access time-out is two seconds. The default short response wait time is 10 second and the default long response wait time is 20 seconds.

Category

View

Syntax

```
[Result=] APUSetTimeoutValues(iMemory, iShort, iLong);
```

Arguments

iMemory
Integer - access time out

iShort
Short response wait time (integer)

iLong
Long response wait time (integer)

Example

```
Status = APUSetTimeoutValues(iMemory,iShort,iLong);
```

See Also

APUSetAlarmGroupText(), APUSetQueryAlarmState(), APUSetQueryFromPriority(), APUSetQueryToPriority()

Handling Alarm Printer Errors

Use the APUTranslateErrorCode() function to convert an Alarm Printer error code to an error message.

APUTranslateErrorCode() Function

Converts an error code returned by one of the APU functions into an English string that briefly describes the error code.

Category

View

Syntax

```
[Result=] APUTranslateErrorCode(iErrorCode, sTagMessage);
```

Arguments

iErrorCode
An integer error code, normally returned by most other APU functions.

sTagMessage
A message tag that receives the error message.

Remarks

This function returns the error message to a message tag as sTagMessage parameter. This function can fail if an unknown error code is passed.

Returns an integer error code.

Example

This example sets the message tag errmsg to "No instance available." if there is no instance 15 of Alarm Printer currently running.

```
Status = APUTranslateErrorCode(APUSetAlarmGroupText(15,"$system"), ErrMsg);
```

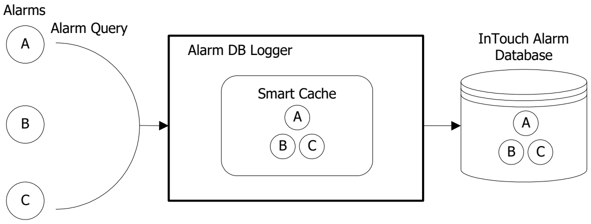
Chapter 9

Recording Alarms into an Alarm Database

About Recording Alarms into an Alarm Database

The InTouch Distributed Alarm system includes the Alarm DB Logger utility that logs alarms and events to the alarm database.

Alarm DB Logger is an alarm consumer. You configure it with one or more queries to select alarms from InTouch alarm providers. The alarms selected by the queries are stored in a transient memory cache, called the Smart Cache. The Alarm DB Logger writes the contents of the Smart Cache to the alarm database as alarm and event records at a periodic interval.



The Alarm DB Logger can auto-reconnect. When the connection to the database is lost, the logger checks for the database connection at regular intervals. Logging resumes when the connection to the alarm database is re-established.

The Alarm DB Logger reports all errors whether running as a service or a normal application to the ArchestrA Logger.

SQL Server Accounts for Alarm DB Logger Manager

The Alarm DB Logger Manager creates and uses the following accounts in the SQL Server database:

Account	Password
wwAdmin	wwadmin
wwPower	wwpower
wwUser	wwuser

Using the Alarm DB Logger Manager

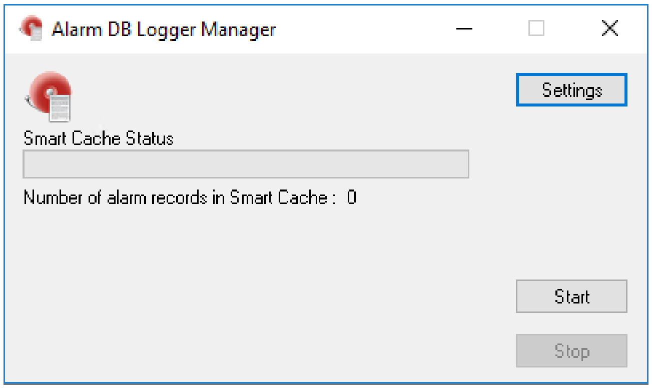
Use the Alarm DB Logger Manager to start and stop logging operations. The Alarm DB Logger Manager can start as a service or a normal application.

You configure alarm logging using the Alarm DB Logger configuration wizard, which you start from within the Alarm DB Logger Manager.

The Alarm DB Logger Manager shows the percentage fill of the Smart Cache with alarm records. Alarms are cached when the SQL Server connection is down or when alarms occur faster than Alarm DB Logger can log them to the alarm database.

To open the Alarm DB Logger Manager

1. In the **Tools** view, expand **Applications**.
2. Double-click **Alarm DB Logger Manager**. The Alarm DB Logger Manager appears.



Number of alarm records in Smart Cache : 0

Configuring Alarm Database Logging

To log InTouch alarm and event data to the alarm database, do the following from within the Alarm DB Logger Manager:

- Configure the connection to the alarm database
- Select which alarms to log to the alarm database
- Set the interval to log records to the alarm database
- Select which method to run the Alarm DB Logger

Establishing the Database Connection

You must establish a connection between the Alarm DB Logger and the alarm database.

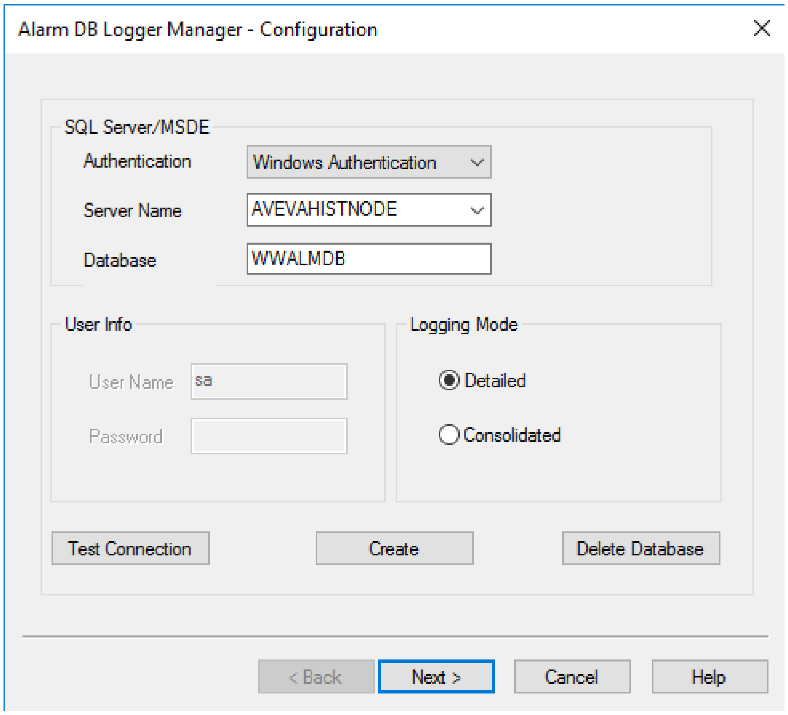
The Alarm DB Logger works with SQL Server and Windows authentication. The SQL Server installation must be set to mixed mode.

To configure the database connection

1. Open the Alarm DB Logger Manager. Do the following:
   a. In the Tools view, expand **Applications**.

b. Double-click **Alarm DB Logger Manager**.

2. Click **Settings**. The **Alarm DB Logger Manager - Configuration** wizard appears.



Alarm DB Logger Manager - Configuration

SQL Server/MSDE

Authentication: Windows Authentication

Server Name: AVEVAHISTNODE

Database: WWALMDB

User Info

User Name: sa

Password:

Logging Mode

● Detailed

○ Consolidated

3. Configure the database connection. Do the following:

   a. In the **Authentication** list, select the authentication method: SQL Server Authentication or Windows Authentication (default).

Note: When you switch from Windows Authentication to SQL Authentication, a pop up dialog will appear with a recommendation to use Windows Authentication for better application security. To proceed with SQL Authentication, click **OK**.

A similar message is also logged in the SMC Log Viewer.

   b. In the **Server Name** box, enter the node name of the computer where the alarm database is installed.

   c. In the **Database** box, type the name of the InTouch alarm database.

   d. In **User Name** box, type the user account name created for the alarm database.

   e. In the **Password** box, type the password associated with the alarm database user account.

Note: The Windows Authentication method uses the credentials of the user currently logged in, and disables the user name and password fields.

4. In the **Logging Mode** area, configure how records are stored. Do either of the following:

   a. Click **Detailed** to store a separate record for each alarm condition (in alarm, acknowledged, and returned to normal).

   b. Click **Consolidated** to store all states of an alarm (in alarm, acknowledged, and returned to normal) in a single record with time stamps for each transition.

5. Click **Create** to create the database, if required.

6. Click **Test Connection** to verify connectivity to the alarm database. A message indicates a successful connection to the database.
7. Click Next to configure which alarms to log. See *Configuring Which Alarms to Log* on page 209 for detailed instructions.

Configuring Which Alarms to Log

In the second page of the Alarm DB Logger Manager configuration wizard, you define one or more queries to select alarms from InTouch or Galaxy alarm providers. You also select a range of alarm priority values that are part of the database query.

Use the following query syntax for remote nodes:

```
\\NodeName\Provider!AlarmGroup
```

Use the following query syntax for the local node:

```
\Provider!AlarmGroup
```

Example:

```
\\ProdSvr\InTouch!$System
```

The following is an example of using a Galaxy alarm provider. This query gives you all alarms from a specific area.

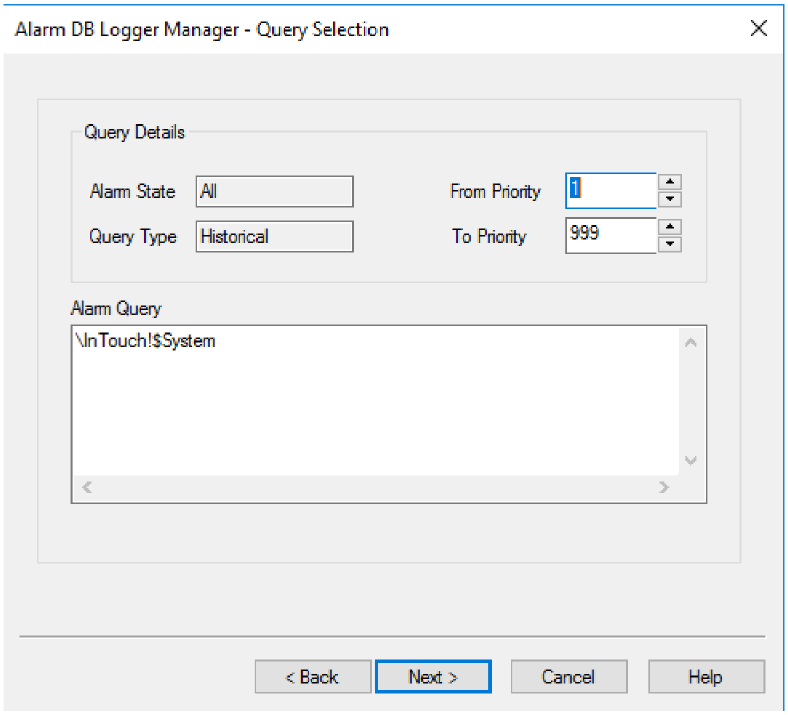
```
\Galaxy!Area
```

Note: The Alarm DB Logger Manager only supports 50 Queries and 3072 characters.

To configure which alarms to log

1. Open the Alarm DB Logger Manager and start the configuration wizard. Do the following:
   a. In the **Tools** view, expand **Applications**.
   b. Double-click **Alarm DB Logger Manager**.
   c. Click **Settings**. The **Alarm DB Logger Manager - Configuration** wizard appears.

2. Click **Next**. The **Alarm DB Logger Manager - Query Selection** page appears.



Alarm DB Logger Manager - Query Selection

Query Details

Alarm State: All

Query Type: Historical

From Priority: 1

To Priority: 999

Alarm Query

```
\InTouch!$System
```

The read-only **Alarm State** box shows the alarm state for logging. The read-only **Query Type** box shows the type of query.

3. In the From Priority box, enter the starting value of the alarm priority range.
4. In the To Priority box, enter the ending value of the alarm priority range.
5. In the Alarm Query box, type the alarm queries that you want to use to store or retrieve data from the alarm database.
6. Click **Next** to configure the logging interval. See *Configuring the Logging Interval* on page 210.

Configuring the Logging Interval

In the third page of the Alarm DB Logger Manager configuration wizard, you configure advanced query settings. You can log events to the alarm database. You can also tune the performance of alarm logging by setting the frequency at which the alarm records are written from internal alarm memory to the database.

The logging interval is not the same as the reconnect rate for the SQL Server. The logging interval is the interval at which alarms should be read. The reconnect rate depends on the time out for a connection attempt associated with the SQL Server.

Setting the logging interval too low impacts system performance.

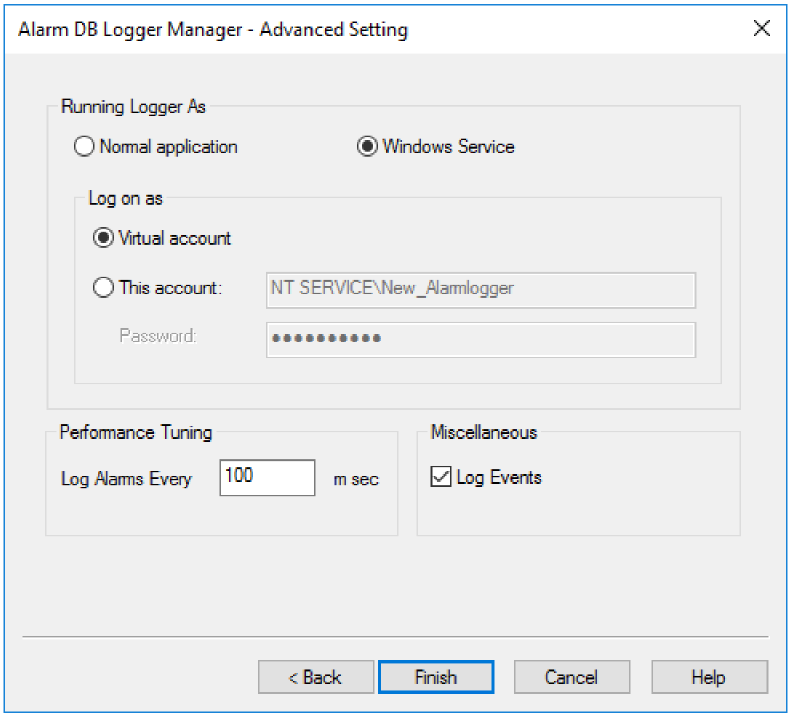
To configure the logging interval

1. Open the Alarm DB Logger Manager and start the configuration wizard. Do the following:
   a. In the **Tools** view, expand **Applications**.
   b. Double-click **Alarm DB Logger Manager**.

c. Click **Settings**. The **Alarm DB Logger Manager - Configuration** wizard appears.

2. Click **Next**. The **Alarm DB Logger Manager - Query Selection** page appears.

3. Click **Next**. The **Alarm DB Logger Manager - Advanced Setting** page appears.



Alarm DB Logger Manager - Advanced Setting

Running Logger As

○ Normal application ● Windows Service

Log on as

● Virtual account

○ This account: NT SERVICE\New_Alarmlogger

Password: ••••••••••

Performance Tuning

Log Alarms Every 100 m sec

Miscellaneous

☑ Log Events

4. Select the **Log Events** check box if you want to store InTouch event records to the alarm database. You can also store events coming from an ArchestrA Galaxy.

5. In the **Performance Tuning** area, type the interval in milliseconds at which alarm records are written to the alarm database.

6. Click **Finish**.

Configuring Alarm DB Logger as a Service

You can configure the Alarm DB Logger to run as a Windows service. To reduce the security exposure of running the Alarm DB Logger with administrator privileges, the user account permissions have been set to non-interactive to run the Alarm DB Logger as a service.

1. Log in to the computer as an administrator.

2. Open the Alarm DB Logger Manager and start the configuration wizard. Do the following:

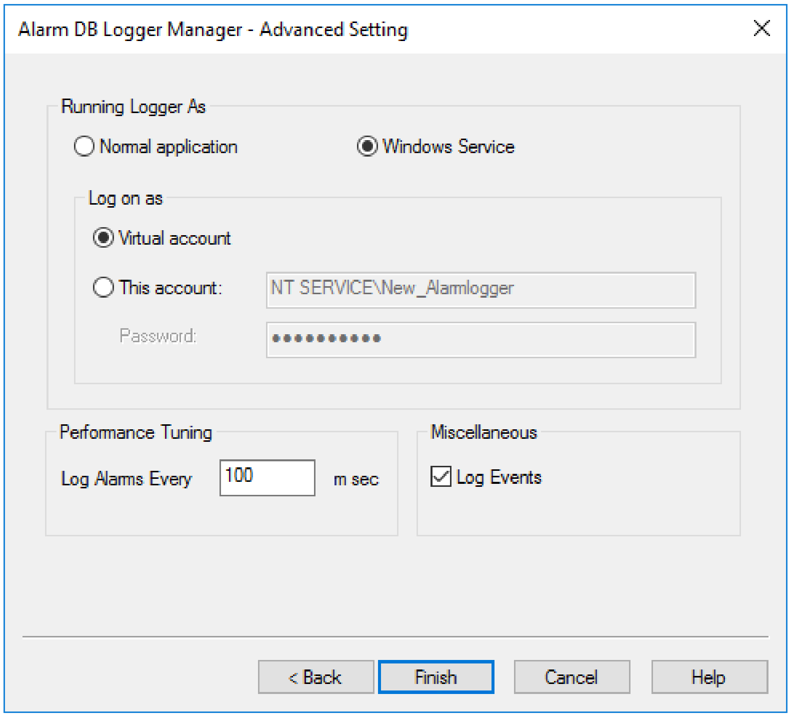
   a. In the **Tools** view, expand **Applications**.

   b. Double-click **Alarm DB Logger Manager**.

   c. Click **Settings**. The **Alarm DB Logger Manager - Configuration** wizard appears.

3. Click **Next**. The **Alarm DB Logger Manager - Query Selection** page appears.

4. Click **Next**. The **Alarm DB Logger Manager - Advanced Setting** page appears.



Alarm DB Logger Manager - Advanced Setting

Running Logger As

○ Normal application ● Windows Service

Log on as

● Virtual account

○ This account: NT SERVICE\New_Alarmlogger

Password: ●●●●●●●●●●

Performance Tuning

Log Alarms Every 100 m sec

Miscellaneous

☑ Log Events

5. In the **Running Logger As** area, click either **Normal Application** or **Windows Service**.

   The credentials will depend on the authentication method selected in the **Alarm DB Logger Manager - Configuration** wizard page.

6. In the **Log on as** area, select the login account based on the following criteria, and click **Finish**.

Authentication Method	Running Logger As	Log on as	User Name	Password
SQL Server Authentication	Windows Service	Virtual account	--	--
Windows Authentication	Windows Service	Virtual account	--	--
Windows Authentication	Windows Service	This account	<username>	<password>

Note: For more information on Virtual account, see *Using Virtual Accounts* on page 212.

By default, selecting **This account** will display the user name of the user currently logged in, in which case password is not required. If you change the user name then you must provide a password.

You must provide a user account with appropriate permissions, to complete the configuration.

The next time you launch the Alarm DB Logger it will pre-fill the configuration details.

Using Virtual Accounts

Choosing virtual account, allows you an additional layer of security. Selecting this option, will start the Alarm DB Logger with an NT Service account called New_AlarmLogger.

The Virtual Account is enabled for both SQL and Windows Authentication. For earlier systems configured with 'LocalSystem', the account will be migrated as follows:

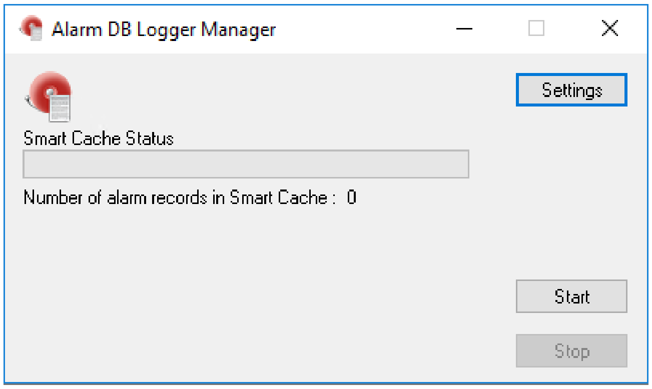
- If previous system is configured with "LocalSystem" in "This account" OR "Local System account" option, then the "This account" with be prefilled with "LocalSystem" as the user.
- If previous system is configured with "This account" as "NT Service\New_AlarmLogger", then it will migrated to "Virtual Account".

Starting and Stopping Alarm Database Logging

The Alarm DB Logger writes records to the alarm database. It starts and runs either as a service or a normal application (depending upon the running mode you select when you configure the Alarm DB Logger).

To start or stop alarm logging

1. In the **Tools** view, expand **Applications**.
2. Double-click **Alarm DB Logger Manager**. The Alarm DB Logger Manager appears.



Number of alarm records in Smart Cache : 0

The **Smart Cache Status** shows the percentage of the in-memory cache holding alarm records.

3. Click **Start** to begin the alarm logging process.
4. Click **Stop** to end the alarm logging process.

Alarm Database Views

You can use a set of SQL Server database views to easily query past and current alarm and event occurrences.

A database view is a single logical table that combines information from multiple, underlying database tables. Database views are often called as virtual database tables because they can be queried using standard SQL statements, just as if they were real tables. When a view is queried, it returns a set of records (or rows). Each row has several columns of information that contain the data for the record.

You can use the alarm database views to perform complex queries. For example, you can retrieve alarm records for all HiHi alarms that occurred during a particular time span in a particular area of the plant. Or, you can retrieve all data change events logged by a certain alarm provider node.

All strings are Unicode in the views.

Alarm History View

The v_AlarmHistory view contains all historical alarms and alarm transition events that occurred over a selected time range. The query specifies start and end date and time (the EventStamp or EventStampUTC column). The returned records include alarm origination, alarm acknowledge, alarm enable, alarm disable, and alarm return-to-normal events.

The following table describes the view columns:

Column Name	Datatype	Description
EventStamp	Datetime	Date and time of alarm event (in local time of database).
AlarmState	nChar	State of alarm: one of UNACK, UNACK_RTN, ACK, ACK_RTN.
TagName	nChar	Name of the object that generated the alarm, such as TIC101.
Description	nVarchar	Description string of the alarm. Can default to object description (or comment in the InTouch HMI). Or acknowledge comment for acknowledged records.
Area	nChar	Name of the Area or Group for the alarm.
Type	nChar	Type of alarm, such as Hi, HiHi, ROC, PV.HiAlarm.
Value	nChar	Value of alarm variable at time of alarm.
CheckValue	nChar	Value of alarm limit at time of alarm.
Priority	Integer	Alarm priority.
Category	nChar	Alarm class or alarm category. Such as Value, Dev, ROC, Process, Batch, System, and so on.
Provider	nChar	Provider of alarm: node/InTouch, or GalaxyName.
Operator	nChar	Name of the operator.
DomainName	nChar	Name of the domain.
UserFullName	nChar	Full name of user in operator (for example, Joseph P. Smith).
UNACKDuration	Float	The time between the most recent alarm transition (alarm or sub-state) and the acknowledgement, if any.
User1	Float	User-defined field number 1.
User2	Float	User-defined field number 2.
User 3	nChar	User-defined field, string.
EventStampUTC	DateTime	UTC date/ time of alarm event.

Column Name	Datatype	Description
Millisec	Small Int	Fractional seconds for event stamp in increments of 0.1 msec.
OperatorNode	nvarchar(32)	Name of the node where the operator acknowledged the alarm.

The v_AlarmHistory2 view is a variation of the v_AlarmHistory view.

Column Name	Datatype	Description
EventStamp	Datetime	Date and time of alarm event (in local time of database).
AlarmState	nChar	State of alarm: one of UNACK, UNACK_RTN, ACK, ACK_RTN, ACK_ALM, UNACK_ALM
TagName	nChar	Name of the object that generated the alarm, such as TIC101.
Description	nVarchar	Description string of the alarm. Can default to object description (or comment in InTouch). Or acknowledge comment for acknowledgement records.
Area	nChar	Name of the Area or Group for the alarm.
Type	nChar	Type of alarm, such as Hi, HiHi, ROC, PV.HiAlarm.
Value	nChar	Value of alarm variable at time of alarm.
CheckValue	nChar	Value of alarm limit at time of alarm.
Priority	Integer	Alarm priority.
Category	nChar	Alarm class or alarm category. Such as Value, Dev, ROC, Process, Batch, System, and so on.
Provider	nChar	Provider of alarm: node/InTouch, or GalaxyName.
Operator	nChar	Name of operator: JoeR (if any).
DomainName	nChar	Name of domain.
UserFullName	nChar	Full name of user in operator (for example, Joseph P. Smith).
AlarmDuration	Float	The time between onset of the alarm and return to normal.
User1	Float	User-defined field number 1.
User2	Float	User-defined field number 2.
User 3	nChar	User-defined field, string.

Column Name	Datatype	Description
EventStampUTC	DateTime	UTC date/ time of alarm event.
Millisec	Small Int	Fractional seconds for event stamp in increments of 0.1 msec.

Example Query - Alarm History View

This example selects all records from the Alarm History view:

```
SELECT * FROM v_AlarmHistory
```

This example selects all records from the Alarm History view with a priority greater than 100:

```
SELECT * FROM v_AlarmHistory WHERE Priority >100
```

Event History View

The v_EventHistory database view lists all historical events that occurred over a selected time range. The query client specifies the starting and ending date and time range. The returned records include all non-alarm events.

Column Name	Datatype	Description
EventStamp	Datetime	Date and time of event.
TagName	nChar	Name of the object that generated the event, such as Pump1.
Description	nVarChar	Description string of the event. Can default to object description, or comment in InTouch.
Area	nChar	Name of the Area or Group for the event.
Type	nChar	Type of event, such as "Operator data change", "Startup", and so on.
Value	nChar	New Value (if any).
CheckValue	nChar	Old Value (if any).
Category	nChar	Event category or class, such as Value, Process, Batch, System, and so on.
Provider	nChar	Generator of event, such as node/InTouch, or View Engine name for user change.
Operator	nChar	Name of operator1: JoeR (if any).
DomainName	nChar	Name of domain.
UserFullName	nChar	Full name of user in operator (for example, Joseph P. Smith).

Column Name	Datatype	Description
User1	Float	User-defined field number 1.
User2	Float	User-defined field number 2.
User 3	nChar	User-defined field, string.
EventStampUTC	DateTime	UTC date/ time of event.
Millisec	Small Int	Fractional seconds for event stamp in increments of 0.1 msec.

Alarm Event History View

The v_AlarmEventHistory database view provides a historical list of all events and alarms that occurred over a selected time range. The query client specifies start and end date and time. The returned records include all alarms and events. This view combines the alarm view and event view into one and represents the union of the records from those views.

Column Name	Datatype	Description
EventStamp	Datetime	Date and time of event.
AlarmState	nChar	State of alarm: one of UNACK, UNACK_RTN, ACK, ACK_RTN. Does not apply for events.
TagName	nChar	Name of the object that generated the alarm, such as TIC101.
Description	nVarchar	Description string of the alarm/event. Can default to object description (or comment in InTouch). Or acknowledge comment for acknowledged records.
Area	nChar	Name of the Area or Group for the alarm.
Type	nChar	Type of alarm or event, such as Hi, HiHi, ROC, PV.HiAlarm, Operator data change, and so on.
Value	nChar	Value of alarm variable at time of alarm.
CheckValue	nChar	Value of alarm limit at time of alarm, or old value for event.
Priority	Integer	Alarm priority.
Category	nChar	Alarm or event class, or alarm category, such as Value, Process, Batch, System, and so on.
Provider	nChar	Provider of alarm, such as node/InTouch, or GalaxyName.
Operator	nChar	Name of acknowledgement operator or data change operator.

Column Name	Datatype	Description
DomainName	nChar	Name of domain.
UserFullName	nChar	Full name of user in operator (for example, Joseph P. Smith).
UNACKDuration	Float	Number of milliseconds from the most recent alarm transition to ACK.
User1	Float	User-defined field number 1.
User2	Float	User-defined field number 2.
User 3	nChar	User-defined field, string.
EventStampUTC	DateTime	UTC date/ time of event.
Millisec	Small Int	Fractional seconds for event stamp in increments of 0.1 msec.

The v_AlarmEventHistory2 view is a variation of the v_AlarmEventHistory view.

Column Name	Datatype	Description
EventStamp	Datetime	Date and time of event.
AlarmState	nChar	State of alarm: one of UNACK, UNACK_RTN, ACK, ACK_RTN. Does not apply for events.
TagName	nChar	Name of the object that generated the alarm, such as TIC101.
Description	nVarchar	Description string of the alarm/event. Can default to object description (or comment in InTouch). Or acknowledge comment for acknowledged records.
Area	nChar	Name of the Area or Group for the alarm.
Type	nChar	Type of alarm or event, such as Hi, HiHi, ROC, PV.HiAlarm, Operator data change, and so on.
Value	nChar	Value of alarm variable at time of alarm.
CheckValue	nChar	Value of alarm limit at time of alarm, or old value for event.
Priority	Integer	Alarm priority.
Category	nChar	Alarm or event class, or alarm category, such as Value, Process, Batch, System, and so on.
Provider	nChar	Provider of alarm, such as node/InTouch, or GalaxyName.

Column Name	Datatype	Description
Operator	nChar	Name of acknowledgement operator or data change operator.
DomainName	nChar	Name of domain.
UserFullName	nChar	Full name of user in operator (for example, Joseph P. Smith).
AlarmDuration	Float	Number of milliseconds from the onset of alarm to the return to normal (RTN).
User1	Float	User-defined field number 1.
User2	Float	User-defined field number 2.
User 3	nChar	User-defined field, string.
EventStampUTC	DateTime	UTC date/ time of event.
Millisec	Small Int	Fractional seconds for event stamp in increments of 0.1 msec.

Example Query - Alarm Event History View

The following example selects the data in the TagName, Area and Type columns for all records that have a tagname of MyTag1, an alarm state of ACK_RTN or ACK. The results are ordered by the alarm provider.

```
SELECT TagName, Area, Type FROM v_AlarmEventHistory
   WHERE TagName=’MyTag1’
      AND (AlarmState=’ACK_RTN’ OR AlarmState=’ACK’)
      ORDER BY Provider
```

Alarm Database Stored Procedures

You can use a set of SQL Server stored procedures to easily retrieve information for analysis and reporting of alarms and events.

A stored procedure is a collection of SQL statements that perform a specific function and return data from the database. Stored procedures can accept input parameters that govern how they are to operate, and they return data in the form of a result set.

The returned results are a set of records and appear as a SQL record set very similar to a SQL Server database view. Stored procedures can improve performance because they exist in the database with their embedded SQL statements and reduce round-trips back to the client.

For more information about stored procedures, including how to view the definitions for them, see your Microsoft SQL Server documentation.

Calling a Stored Procedure

Call a stored procedure using the EXECUTE statement.

```
EXECUTE sp_AlarmCounter @StartDate=’2007-01-01’, @EndDate=’2007-03-31’, @Tagname = ’tag1’,
@Type = ’LO’, @Provider = ’WW21353\InTouch’, @Comment = ’SSAADD’
```

In this example, the StartDate and EndDate parameters are required. The remaining parameters are optional. If you do not provide a value for a parameter, it is not used to filter the result set.

If a stored procedure includes a date/time variable, you can use any valid format specified in the SQL Server documentation.

AlarmCounter Database Stored Procedure

This stored procedure returns the number of times a unique alarm occurred in a time interval. A unique alarm is identified by its TagName, Provider, Alarm Type, and Category.

The counter only applies to the number of alarm originations (not transitions such as acknowledges or returns-to-normal). So, for example, if an alarm occurred and then was acknowledged and then returned to normal, the count for that alarm is only 1 (not 3).

The query must specify the starting and ending date and time. It has five optional parameters: TagName, Class, Type, Provider and Comment.

An example question answered by this view: How many times did object TIC101 (TagName) on provider Node1|InTouch (Provider) go into a Value alarm (Category) that was HiHi (Type) during a time span?

Note: The AlarmCounter stored procedure applies only to the Detailed logging mode and is not supported by Consolidated logging.

```
sp_AlarmCounter
```

Column Name	Datatype	Description
TagName	Nchar	Name of the object that generated the alarm, such as TIC101.
GroupName	Nchar	Name of the area or group for the alarm
AlarmType	Nchar	Type of alarm such as Hi, HiHi, ROC, PV, HiAlarm.
AlarmClass	Nchar	Alarm class or alarm category such, as Value, Process, Batch, etc.
AlarmCount	Integer	Number of onsets of the alarm during the time range. If an alarm occurs prior to the starting date and time, it is not included in the count.
Priority	Integer	Alarm priority.
Provider	Nchar	Provider of alarm, such as node/InTouch, or GalaxyName.
Comment	Nchar	The alarm comment.

An example query is:

```
EXECUTE sp_AlarmCounter @StartDate=’2007-01-01 23:23:23’, @EndDate=’2007-03-31 23:23:23’,
@Tagname = ’$NewAlarm’
```

EventCounter Database Stored Procedure

This database stored procedure provides the count of the number of events of a certain type on a certain tag that occurred in a time interval. The query client must specify start and end date and time. It has three optional parameters: TagName, Provider and Comment. The counter applies only to non-alarm events.   The purpose of this view is to show frequency of each event. For example, how many times did the pump turn on? The TagName, Provider, Category and Type are used to uniquely identify an event and do the counting.

```
sp_EventCounter
```

Column Name	Datatype	Description
TagName	NChar	Name of the object that generated the alarm, such as TIC101
Area	NChar	Name of the Area or Group for the alarm.
Type	NChar	Type of event.
Category	NChar	Alarm class or alarm category, such as Value, Process, Batch, etc.
EventCount	Integer	Number of times the event of this Type for the TagName has occurred in the specified time range.
Provider	NChar	Provider of event: node/InTouch, or GalaxyName.
Comment	NChar	The event comment.

An example query is:

EXECUTE sp_EventCounter @StartDate=’2007-01-01 23:23:23’, @EndDate=’2007-03-31 23:23:23’, @Tagname = ’$NewAlarm’

Chapter 10

Viewing Recorded Alarms

About Viewing Recorded Alarms

You use the Alarm DB View ActiveX control to visualize data from the alarm database. Use this control to show all alarm and event information generated from an InTouch application during run time.

For this control, you can configure:

- Context sensitive menu features
- Display mode
- List control options
- Colors for different properties
- Font type, style and size
- Database specifications (server name, user ID and password)
- Query filters
- Column management
- Sorting

Run-time users can change options while the application is running to select the data they are viewing. They can:

- Sort the information within a column
- Update the display
- Perform a query
- Resize the width of a column

For more information about ActiveX controls, see ActiveX Controlsin the InTouch® HMI Visualization Guide.

Configuring the Alarm DB View Control

When you configure the Alarm DB View control, you:

- Configure the connection to the alarm database.
- Configure the appearance of the grid.

- Select a display font.
- Configure the visual appearance.
- Set which features the user can access while the application is running.
- Configure which alarms to show.
- Create custom filters.
- Set the colors for the types of alarm records.
- Configure the time formats as shown.
- Configure the sort order of alarm records shown.

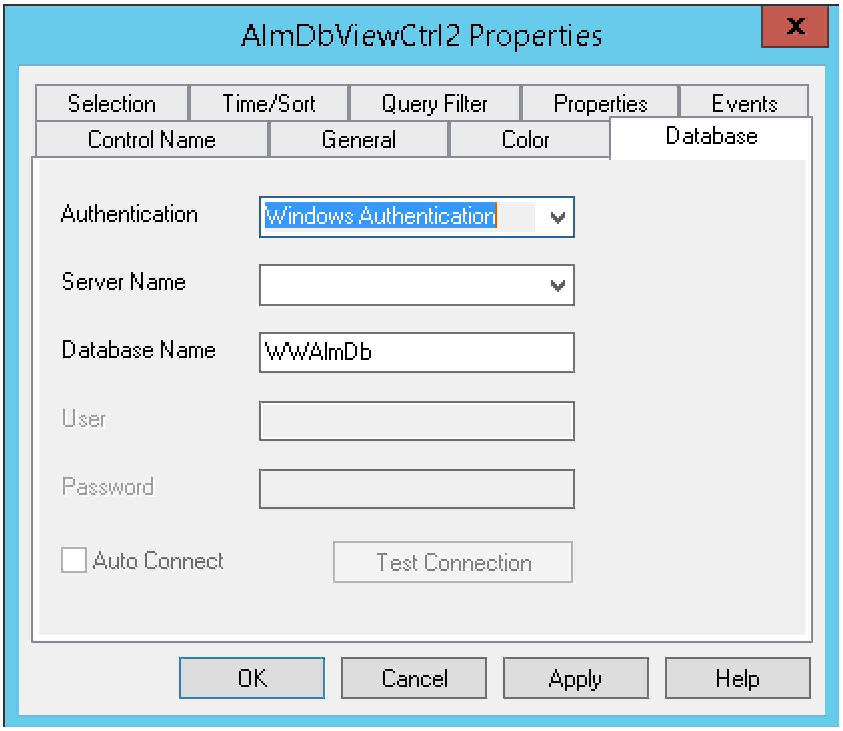
Connecting the Alarm DB View to the Alarm Database

You must configure the connection between the Alarm DB View control and the alarm database.

Use an account with appropriate read-only access to the alarm database and not a system administrator account.

To configure the connection to the alarm database

1. Right-click the Alarm DB View control and then click **Properties**. The **AlmDbViewCtrl Properties** dialog box appears.
2. Click the **Database** tab.



AlmDbViewCtrl2 Properties

Authentication: Windows Authentication

Server Name:

Database Name: WWAlmDb

User:

Password:

□ Auto Connect

3. Configure the connection to the alarm database. Do the following:
   a. In the **Authentication** list, select the authentication method: SQL Server Authentication or Windows Authentication (default).

Note: When you switch from Windows Authentication to SQL Authentication, a pop up dialog will appear with a recommendation to use Windows Authentication for better application security. To proceed with SQL Authentication, click **OK**.

A similar message is also logged in the SMC Log Viewer.

b. In the **Server Name** box, enter the node name of the computer where the alarm database is installed.

c. In the **Database Name** box, type the database name.

d. In the **User** box, type the name of a valid user account.

e. In the **Password** box, type the password associated with the user account.

Note: The Windows Authentication method uses the credentials of the user currently logged in, and disables the user name and password fields.

4. Select the **Auto Connect** check box to have the Alarm DB View control automatically connect to the alarm database when the InTouch application starts running.

   If you do not select the **Auto Connect** check box, you must configure the Alarm DB View control to connect to the alarm database by explicitly calling the Connect() method. For more information about the Connect method, see *Connect()* on page 267.

5. Click **Test Connection** to verify connectivity to the alarm database. A message indicates a successful connection.

6. Click **Apply**.

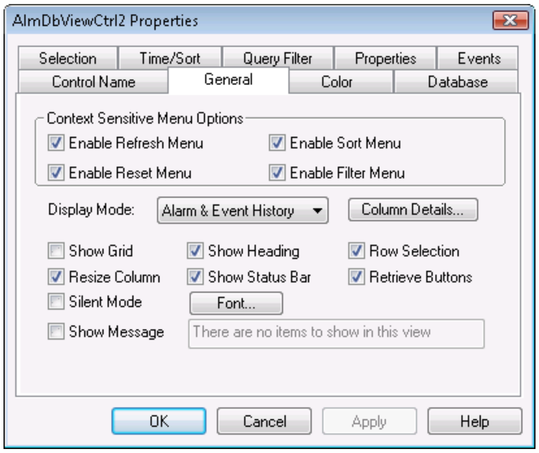
Configuring the Appearance Properties of the Grid

You can configure properties that determine the visual appearance of the Alarm DB View control.

To configure the appearance of the grid

1. Right-click the Alarm DB View control and then click **Properties**. The **AlmDbViewCtrl Properties** dialog box appears.

2. Click the **General** tab.



Context Sensitive Menu Options

☑ Enable Refresh Menu ☑ Enable Sort Menu

☑ Enable Reset Menu ☑ Enable Filter Menu

Display Mode: Alarm & Event History

□ Show Grid ☑ Show Heading ☑ Row Selection

☑ Resize Column ☑ Show Status Bar ☑ Retrieve Buttons

□ Silent Mode

□ Show Message There are no items to show in this view

3. Configure the general appearance. Do the following:

- Click the **Show Grid** check box to show the grid.
- Click the **Silent Mode** check box to prevent the control from showing any error messages at run time.
- Click the **Show Message** check box to show a message if the alarm query does not return any records. Type the message to show in the box.
- Click the **Show Heading** check box to show the control heading.
- Click the **Show Status Bar** check box to show the status bar.

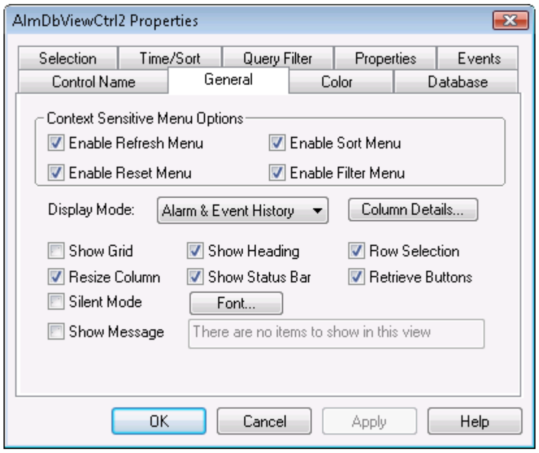
4. Click **Apply**.

Configuring the Display Font

You can select the font of all text that appears in the Alarm DB View control.

To configure the font properties

1. Right-click the Alarm DB View control and then click **Properties**. The **AlmDbViewCtrl Properties** dialog box appears.
2. Click the **General** tab.



Context Sensitive Menu Options
☑ Enable Refresh Menu ☑ Enable Sort Menu
☑ Enable Reset Menu ☑ Enable Filter Menu

Display Mode: Alarm & Event History

□ Show Grid ☑ Show Heading ☑ Row Selection
☑ Resize Column ☑ Show Status Bar ☑ Retrieve Buttons
□ Silent Mode
□ Show Message There are no items to show in this view

3. Click Font. The standard Windows **Font** dialog box appears. Configure the font and then click **OK**.
4. Click **Apply**.

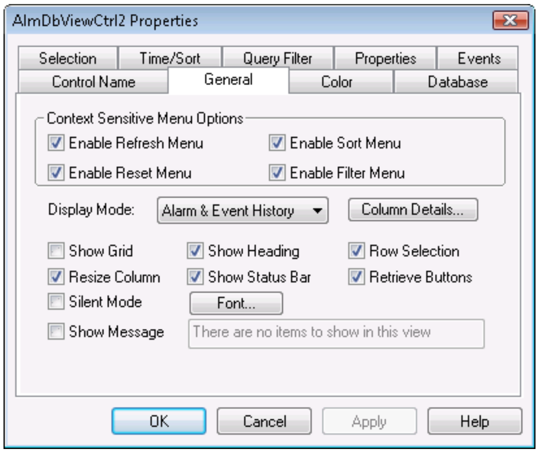
Choosing Alarm or Event Data

You can configure if alarm records, event records, or both appear in an Alarm DB View control.

To select the type of data

1. Right-click the Alarm DB View control and then click **Properties**. The **AlmDbViewCtrl Properties** dialog box appears.

2. Click the **General** tab.



Context Sensitive Menu Options

☑ Enable Refresh Menu ☑ Enable Sort Menu

☑ Enable Reset Menu ☑ Enable Filter Menu

Display Mode: Alarm & Event History ▾ Column Details...

□ Show Grid ☑ Show Heading ☑ Row Selection

☑ Resize Column ☑ Show Status Bar ☑ Retrieve Buttons

□ Silent Mode Font...

□ Show Message There are no items to show in this view

3. In the **Display Mode** list, click the type of historical records from the list:

   a. Click **Alarm & Event History** to show both alarm and event historical database records.

   b. Click **Alarm History** to show only historical alarm records.

   c. Click **Event History** to show only historical event records.

4. Click **Apply**.

Selecting and Configuring Display Columns

For the Alarm DB View control, you can:

- Select and order the columns.
- Set the width of a column in pixels.
- Rename a column.

At least one column must be selected.

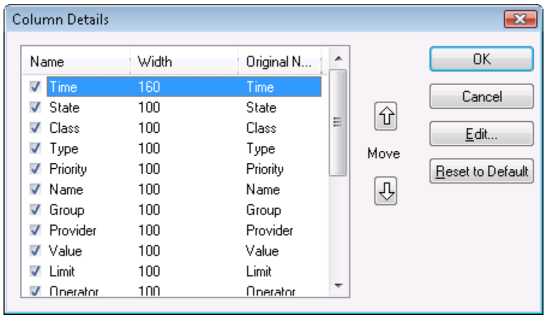
Important: The column names are reset to default column names if the display mode is changed. It is better to select the display mode first before changing the column names.

To configure the display column details

1. Right-click the Alarm DB View control and then click **Properties**. The **AlmDbViewCtrl Properties** dialog box appears.

2. Click the General tab.

3. Click Column Details. The **Column Details** dialog box appears.



Name	Width	Original N...
☑ Time	160	Time
☑ State	100	State
☑ Class	100	Class
☑ Type	100	Type
☑ Priority	100	Priority
☑ Name	100	Name
☑ Group	100	Group
☑ Provider	100	Provider
☑ Value	100	Value
☑ Limit	100	Limit
☑ Operator	100	Operator

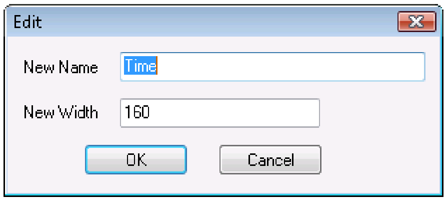
4. In the **Name** column, select the check boxes next to the names of the columns that you want to appear in the Alarm DB View control. You must select at least one column from the list.

Column Name	Description
Time	Shows the time at which the alarm occurred.
State	Shows the state of the alarm.
Class	Shows the alarm category.
Type	Shows the alarm type.
Priority	Shows the alarm priority.
Name	Shows the tag or source that caused the alarm or event.
Group	Shows the alarm group name.
Provider	Shows the name of the alarm provider.
Value	Shows the value of the tag when the alarm occurred.
Limit	Shows the alarm limit value of the tag.
Operator	Shows the logged-on operator’s ID associated with the alarm condition.
Operator Full Name	Shows the logged-on operator’s full name.
Operator Node	Shows the logged on operator’s node associated with the alarm condition. In a Terminal Services environment, this is the name of the client computer that the operator established the Terminal Services session from. If the node name can't be retrieved, the node's IP address is used instead.
Operator Domain	Shows the logged on operator’s domain associated with the alarm condition.

Column Name	Description
Alarm Comment	Shows the tag's comments. This comment was typed in the **Alarm Comment** box when the tag's alarm was defined in the database. When an acknowledgement comment is introduced for alarms, the new comment is updated in this comment column.
User1	Shows the numerical values of **User Defined Number 1** corresponding to the alarm.
User2	Shows the numerical values of **User Defined Number 2** corresponding to the alarm.
User3	Shows the string value of the user defined string property associated with the alarm.
Duration	Shows the unacknowledgement duration or the alarm duration, depending on what has been selected by the operator.
UTC Time	Shows the time of the alarm in UTC.

5. Rearrange columns by selecting the column name and using the up and down arrows. The column name appearing at the top of the **Column Details** dialog box is the left-most column of the alarm control.

6. To change the name of a column or its width, select the column and click **Edit**. The Edit dialog box appears.



New Name: Time

New Width: 160

   a. In the **New Name** box, type the new column name.

   b. In the **New Width** box, type the column width. The column width can range from 1 to 999 pixels.

   c. Click **OK**.

7. Click **Reset to Default** to return to the default column detail settings.

8. Click **OK** in the **Column Details** dialog box.

9. Click **Apply**.

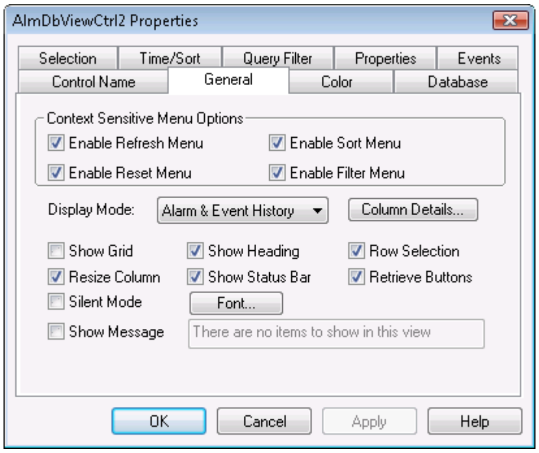
Controlling Which Features You Can Access at Run Time

You can enable and disable the shortcut menu features available at this control.

To configure run-time features

1. Right-click the Alarm DB View control and then click **Properties**. The **AlmDbViewCtrl Properties** dialog box appears.

2. Click the **General** tab.



Context Sensitive Menu Options

☑ Enable Refresh Menu ☑ Enable Sort Menu

☑ Enable Reset Menu ☑ Enable Filter Menu

Display Mode: Alarm & Event History

□ Show Grid ☑ Show Heading ☑ Row Selection

☑ Resize Column ☑ Show Status Bar ☑ Retrieve Buttons

□ Silent Mode

□ Show Message There are no items to show in this view

3. In the **Context-Sensitive Menu Options** area, configure which menu commands are available at run time.

- Select the **Enable Refresh Menu** check box to enable the **Refresh** menu option in the shortcut menu of the control at run time. The **Refresh** menu refreshes the control to the database, and if the connection is successful, it shows the set of records in the range 1 to number defined by the MaxRecords property.
- Select the **Enable Reset Menu** check box to enable the **Reset** menu option in the shortcut menu of the control at run time. The **Reset** menu arranges all the columns to the settings saved at design time.
- Select the **Enable Sort Menu** check box to enable the Sort menu option on the shortcut menu of the control at run time. This menu shows the **Secondary Sort** menu used to set the user-defined sorting of columns.
- Select the **Enable Filter Menu** check box to enable the **Filter** menu option on the shortcut menu of the control at run time. This menu shows the filter menu used to set the user-defined filtering criteria.

1. Click the **Resize Column** check box to allow resizing the columns.
2. Select the **Row Selection** check box to enable selecting alarm records.
3. Select the **Retrieve** buttons check box to show the retrieval buttons at the right side of the control.
4. Click **Apply**.

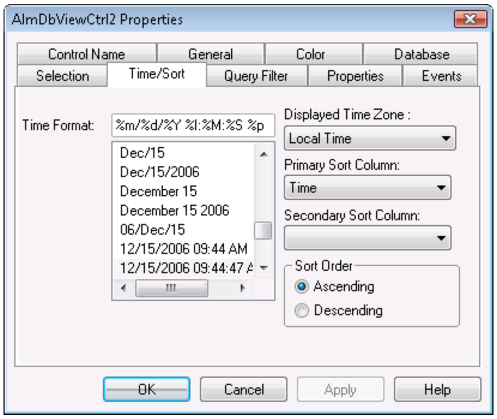
Configuring the Shown Time Format and Time Zone for Alarm Records

You can configure the time format and time zone for alarm records shown in the Alarm DB View control.

To configure time format

1. Right-click the Alarm DB View control and then click **Properties**. The AlmDBViewCtrl Properties dialog box appears.

2. Click the **Time/Sort** tab.



Time Format: %m/%d/%Y %I:%M:%S %p

- Dec/15
- Dec/15/2006
- December 15
- December 15 2006
- 06/Dec/15
- 12/15/2006 09:44 AM
- 12/15/2006 09:44:47 A

Displayed Time Zone : Local Time

Primary Sort Column: Time

Secondary Sort Column:

Sort Order

● Ascending

○ Descending

3. In the **Time Format** list, click a time format:

String character	**Description**	**Example**
d	Two-digit day	31
b	Three-letter month abbreviation	Aug
Y	Four-digit year	2007
m	Two-digit month	11
/	Date division function	06/2007
y	Two-digit year	07
#x	Full day and date	Friday, August 09, 2002
B	Full month name	September
-	Dash date division punctuation	06-07
.	Period date division punctuation	06.07
,	Comma date division punctuation	Aug 09, 2007
H	24 hour time	22:15
:	Time division punctuation as in 4:41	
M	Minute	00:41
p	AM or PM display	
S	Seconds	16:41:07

String character	Description	Example
s	Fractions of a second	16:41:07.390
I	12 hour time with AM/PM designation	04:41 PM

You can also manually enter your own format string in the list box using custom text and the formatting characters. Some sample time format character strings are shown below:

Time Format String	Display
%d %b	09 Aug
%m/%d/%Y	08/09/2002
%#x	Friday, August 09, 2002
%Y-%m-%d	2002-08-09
%m/%d/%Y %H:%M %p	08/09/2002 16:56 PM
%m/%d/%Y %H:%M:%s %p	08/09/2002 16:56:38.07
%I:%M %p	04:56 PM

4. In the **Displayed Time Zone** list, click the desired time zone:

Time Zone	Description
GMT	Alarm time stamps use Greenwich Mean Time.
Local Time	Alarm time stamps are shown with the local time of the client hosting the Alarm DB View control.
Origin Time	Alarm time stamps are shown with the local time of the alarm provider.

5. Click **Apply**.

Selecting the Time Period of Data from the Alarm Database

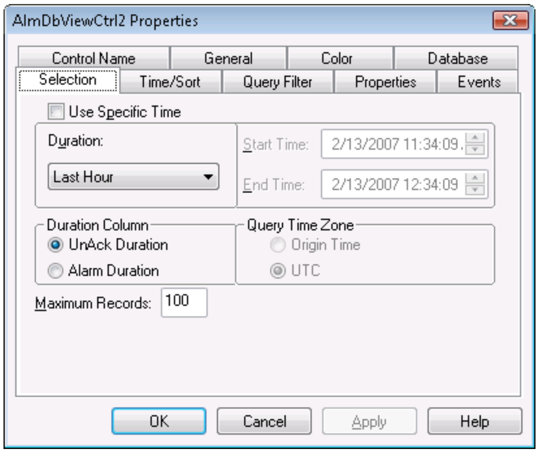
You can set query values to select records based on the selected time. You can also configure the maximum number of records to view, the start and end time of the alarm query, and the query time zone.

The number of records retrieved by an alarm database query affects the time required to show the records in the Alarm DB View control. The Alarm DB View control takes approximately 30 seconds to show 50000 records retrieved from the alarm database.

To improve the performance of the Alarm DB View control, reduce the **Maximum Records** value to display records more quickly. Also, you can select a shorter record retrieval interval in the **Duration** field to improve the performance of the Alarm DB View control.

To select the time period of data

1. Right-click the Alarm DB View control and then click **Properties**. The **AlmDBViewCtrl Properties** dialog box appears.
2. Click the **Selection** tab.



□ Use Specific Time

Duration: Last Hour

Start Time: 2/13/2007 11:34:09

End Time: 2/13/2007 12:34:09

Duration Column: ● UnAck Duration ○ Alarm Duration

Query Time Zone: ○ Origin Time ● UTC

Maximum Records: 100

3. To use a pre-defined time interval that always queries for data using the UTC time zone, click an interval from the **Duration** list.
4. To use a specific start time and end time, click **Use Specific Time** and then configure the details.
   a. In the **Start Time** box, enter the start time to retrieve the alarm records. The string must be in MM/DD/YYYY HH:MM:SS format. Use any date in any time zone from midnight, January 1, 1970, to January 18, 19:14:07, 2038.
   b. In the **End Time** box, enter the end time to stop retrieving alarm records. The string must be in MM/DD/YYYY HH:MM:SS format. Use any date in any time zone from midnight, January 1, 1970, to January 18, 19:14:07, 2038.
   c. In the **Query Time Zone** area, click either **UTC** or **Origin Time**. UTC time is Greenwich Mean Time, also known as Coordinated Universal Time or Zulu. Origin time is the current time in the operator's time zone.
5. In the **Duration Column** area, configure which type of duration is shown. Duration is measured in milliseconds.
   - Click **UnAck Duration** to show the time between the most recent alarm transition (alarm or sub-state) and the acknowledgement, if any.
   - Click **Alarm Duration** to show the amount of time elapsed between the initial occurrence of an alarm and the time at which it returned to a normal state.
6. In the **Maximum Records** box, type the number of records to view from the control at one instance. The valid range of maximum records is from 1 to 1000.
7. Click **Apply**.

About Query Time Zones

The Query Time Zone options are **Origin Time** and **UTC**.

- Origin time is the local time in the operator's time zone.
- UTC time is Greenwich Mean Time, also known as Coordinated Universal Time or Zulu.

If Use Specific Time is selected, you can select between the two query time zone options. If Use Specific Time is not selected, the selected Duration predefined time interval always queries for data using the UTC time zone.

To avoid problems during the Daylight Saving Time switch, we recommend that you always use UTC in Query Time Zone. If you use Local Time instead, it is possible that alarm records will be missing for the transition period from Daylight Saving Time to Normal Time.

If you are running several different computers with different time zone settings, and they are all logging to the same alarm database, each record will get the time stamps in UTC, plus the time zone offset and daylight saving adjustment needed to convert that time stamp to the corresponding Origin Time. As a result, every entry in the database has two time stamps: the UTC time and the Origin Time from the computer that did the logging. This makes retrievals faster. In the table entries, the UTC time is identified as the "Transition Time" and the Origin Time is identified as the "EventStamp."

Creating Custom Filters and Using Filter Favorites

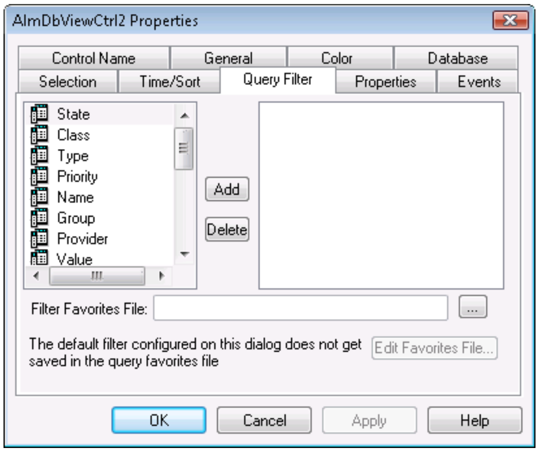
You can select which records are included in your query results. For example, you can select a filter by the date of a record or the state of the alarm. You can select multiple fields to limit or expand your query results.

If you do not define a custom filter, all records are returned.

If you translated strings for language switching, you cannot use those strings as filter criteria. Translated strings are stored outside of the alarm database.

To create custom filters

1. Right-click the **Alarm DB View** control and then click **Properties**. The AlmDBViewCtrl Properties dialog box appears.
2. Click the **Query Filter** tab.



The default filter configured on this dialog does not get saved in the query favorites file

3. In the left pane, select filter fields and then click **Add** to include them in the filter, which is shown in the right pane. The filter fields are described in the following table:

Field name	Filters query by:
State	Alarm state. For more information, see *Values for the State Column* on page 236.
Class	Alarm class.
Type	Alarm type.
Priority	Alarm priority.
Name	Alarm name.
Group	Alarm group name.
Provider	Alarm provider.
Value	Alarm value. Values in the Value column are shown as alphanumeric values. The comparisons of these values in the Query Filter are done as string comparisons.
Limit	Alarm limit. Values are alphanumeric. The comparisons of these values in the Query Filter are done as a string comparisons.
Operator	Operator.
OperatorFullName	Operator's full name.
OperatorNode	Operator's node name associated with the alarm.
OperatorDomain	Operator's domain name associated with the alarm.
Comment	Alarm comment.
User1	Alarm user-defined numeric value 1.
User2	Alarm user-defined numeric value 2.
User3	Alarm user-defined string value.
Duration	Unacknowledgement and alarm duration. A Duration column set equal to zero does not produce records with a null value in the query.

4. To remove a field from the filters pane, click the field you want to delete and click Delete. Deleting a filter cannot be undone. When a message appears, click **Yes**.
5. Configure the criteria for each filter field. For more information, see *Defining the Column Filter Criteria* on page 235.
6. Configure the operators and grouping for the filter. For more information, see *Grouping Alarm Columns* on page 236.
7. Configure the query favorites file. Do the following:

a. In the Filter Favorites File box, type the network path and file name or click the ellipse button to browse for the file.

b. To edit the **Filter Favorites** file, click the **Edit Favorites File** button. The **Filter Favorites** window opens, allowing you to add, modify, or delete filters from your favorites file. When you are done, click **OK** to save your changes and close the window.

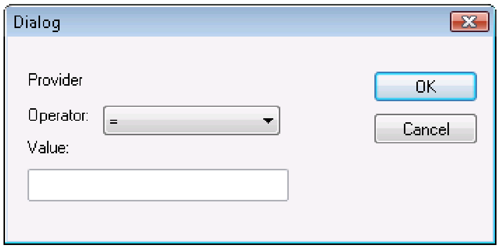
8. Click **Apply**.

Defining the Column Filter Criteria

For each column filter you include in the query, you must configure the filter criteria. For example, you might want to only see alarms for a specific operator.

To define a column filter

1. Right-click the field and then click Edit Filter. The Dialog dialog box appears.



2. In the Operator list, select the operator you need.
3. In the Value box, type the criteria that must be matched. The **Value** box does not accept values that cannot be processed for the selected query. The **Value** box accepts the following wildcard characters when the **Like** and **Not Like** filter operators are used for alphanumeric column names:

Character	Finds
%	Any string of zero or more characters
_	Any single character
[ ]	Any single character within the specified range, for example [a-f], or within a set, for example [abcdef].
[^]	Any single character not within the specified range, for example [^a-f], or set, for example [^abcdef].

The following Value box limits apply to different fields:

Field	Limit
All fields	All alphanumeric characters except User1, User2 and Priority.
Priority	Accepts integer values from 1 to 999.

Field	Limit
User1, User2	Accepts only negative, positive or fractional numbers.

4. Click **OK**.

Grouping Alarm Columns

When more than one field is defined, the columns are combined using Boolean operators.

- The AND operator returns records that meet all values of the selected fields.
- The OR operator returns records that meet the values of any of the selected fields.

To use AND/OR operators to set the filter selection criteria, the respective fields must be grouped together. Only a single filter expression can be created on an item in the filters pane. If multiple expressions are needed, then the item must be added to the filters pane again.

By default, the grouped fields have the AND operator.

The AND and OR operators are parent nodes. The fields selected under each parent node are child nodes. You cannot drag fields parent nodes to child nodes.

To group alarm columns

1. Right-click the field and then click Group.
2. Drag a field onto another field.

Copying or Moving Query Filters

If you have more than one instance of Alarm Pareto control and want to use the same filters for multiple instances, you can copy or cut the defined filters from one instance and paste them to another filter.

To copy filters

1. Define the filters in the first instance of the Alarm Pareto control.
2. Right-click the filters and click **Copy**. To move the filters, click **Cut**.
3. Close the first instance of the Alarm Pareto control.
4. Open the next instance of the Alarm Pareto control and click the **Query Filter** tab.
5. Position the arrow in the right pane. Right-click on a selected filter and click **Paste**.

Values for the State Column

When you add the State column to your filter query, you may assign values from the **Value** menu in the **Define Filter** dialog box. The values available are described in the following table:

Value	Description
ACK	Produces a query of all system acknowledgements.
ACK_ALM	Produces a query of all acknowledged alarms.
UNACK_ALM	Produces a query of all unacknowledged alarms.
ACK_RTN	Produces a query of all acknowledged alarms that have returned to normal.
UNACK_RTN	Produces a query of unacknowledged alarms that have returned to normal.
All UNACK Records	Produces a query of all unacknowledged records.
All ACK Records	Produces a query of all acknowledgement records.
All ALM Records	Produces a query of all alarm records.
All RTN Records	Produces a query of all alarms that have returned to normal.

Note: When a tag in expanded summary alarm mode is used to create an alarm, which returns to normal when the main alarm is acknowledged, two records are created. The first record is the "acknowledged and returned to normal" record as the new alarm is already in a returned to normal state. The second record is acknowledged, which corresponds to acknowledging the main alarm. The previous implementation of ACK_ALM has been changed to ACK.

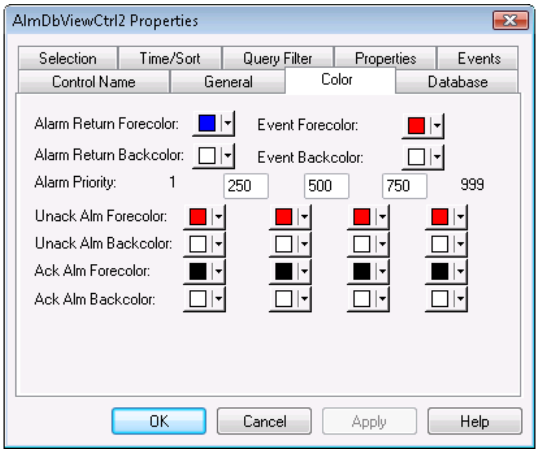
Configuring Colors for Various Types of Alarm Records

You can set the colors for alarm and event records.

To configure alarm display colors

1. Right-click the Alarm DB View control and then click Properties. The AlmDBViewCtrl Properties dialog box appears.

2. Click the Color tab.



Alarm Return Forecolor: 🟦 Event Forecolor: 🟥
Alarm Return Backcolor: □ Event Backcolor: □
Alarm Priority: 1 250 500 750 999

Unack Alm Forecolor:	🟥	🟥	🟥	🟥
Unack Alm Backcolor:	□	□	□	□
Ack Alm Forecolor:	■	■	■	■
Ack Alm Backcolor:	□	□	□	□

3. Configure the color for each of the following by clicking the color box to open the palette.

Option	**Description**
Alarm Return Forecolor	Sets the foreground color of records for alarms that return to normal.
Alarm Return Backcolor	Sets the background color of records for alarms that return to normal.
Event Forecolor	Sets the foreground color of events records
Event Backcolor	Sets the background color of events records

4. In the Alarm Priority boxes, type the breakpoint values for the alarm display. You can assign breakpoint values so that alarms will appear in different colors depending on the Alarm Priority. The default minimum and maximum alarm priority values are 1 and 999, respectively.

   For example, you set the **Unack Alm Forecolor** to be orange for the priority range of 250 to 499 and red for the priority range of 1 to 249. If an alarm occurs with a priority of 254, it is shown in an orange font. If an alarm occurs with a priority of 12, it is shown in a red font.

5. Configure the color for each of the following by clicking the color box to open the palette.

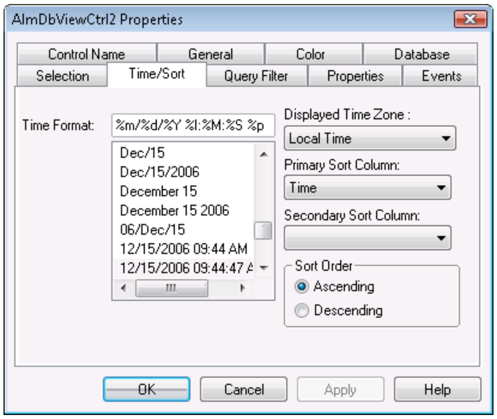
Option	**Description**
Unack Alm Forecolor	Sets the foreground color for each color priority range for unacknowledged alarms.
Unack Alm Backcolor	Sets the background color for each color priority range for unacknowledged alarms.
Ack Alm Forecolor	Sets the foreground color for each color priority range for acknowledged alarms.
Ack Alm Backcolor	Sets the background color for each color priority range for acknowledged alarms.

6. Click Apply.

Configuring the Sort Order for Alarm Records

You can control the way the alarm records are sorted in the control.

1. Right-click the Alarm DB View control and then click Properties. The AlmDBViewCtrl Properties dialog box appears.
2. Click the **Time/Sort** tab.



Time Format: %m/%d/%Y %I:%M:%S %p

Dec/15
Dec/15/2006
December 15
December 15 2006
06/Dec/15
12/15/2006 09:44 AM
12/15/2006 09:44:47 A

Displayed Time Zone : Local Time

Primary Sort Column: Time

Secondary Sort Column:

Sort Order
● Ascending
○ Descending

3. In the **Primary Sort Column** list, click the name of the primary sort column. Only visible columns appear in the **Sort Column** list. If you do not see the column you want, click the General tab and select the column from Column Details.
4. In the **Secondary Sort Column** list, click the name of the secondary sort column.
5. Select **Ascending** or **Descending** as the sort direction.
6. Click **OK**.

Using an Alarm DB View Control at Run Time

Depending on how the control is configured, you can:

- Retrieve and refresh the data.
- Sort the data.
- Filter the data.
- Select rows.
- Change the column order by dragging them.
- Reset all the columns to the settings saved at design time.

Sorting Records

You can sort records in the display. Click on the heading to sort all the rows.

Right-click in the control and click **Sort** to open the Secondary Sort dialog box, where you can do single and multiple column sorting, in ascending or descending order.

To specify the columns to be sorted, select the check box beside the column name. Use the Sort Order arrow keys to rearrange the columns.

If multiple alarm events have the same time stamp, they may not appear in the expected order.

For example, if the desired sorting is in descending order based on the alarm state first, then:

1. Select both the **Date** and **State** check boxes.
2. Select the **State** row.
3. Click the up sort order arrow.
4. In the Sort Type area, click **Descending**.
5. Click **OK**.

Understanding Status Bar Information

The status bar shows the current status of the control.

- The left frame shows the server name and the database connected.
- The middle frame shows the number of the records that is shown out of the total number of records that is returned by the query.
- The right side of the frame shows the connection status with the server.

Using Alarm DB View ActiveX Properties

You can set the value an Alarm DB View control property directly using a script or you can assign it to an InTouch tag or I/O reference. For more information about setting properties, see Scripting ActiveX Controls in the InTouch® HMI Scripting and Logic Guide.

For more information on setting color values, see *Configuring Colors for ActiveX Controls* on page 68.

AckAlmBackColor Property

Gets or sets the acknowledged alarm background color. This setting overrides the individual range color settings for acknowledged alarms (AckAlmBackColorRange1 to AckAlmBackColorRange4).

Type

Integer

Default

White

Syntax

```
Object.AckAlmBackColor [= color]
```

Value

color
A value or constant that determines the color of the background.

AckAlmBackColorRange1 Property

Gets or sets the acknowledged alarm background color. This color applies to the records shown in the control with state ACK_ALM with priorities in the range 1 to ColorPriorityRange1.

Type

Integer

Default

White

Syntax

```
Object.AckAlmBackColorRange1 [= color]
```

Value

color
A value or constant that determines the color of the background.

AckAlmBackColorRange2 Property

Gets or sets the acknowledged alarm background color. This color applies to the records shown in the control with state ACK_ALM with priorities in the range ColorPriorityRange1 to ColorPriorityRange2.

Type

Integer

Default

White

Syntax

```
Object.AckAlmBackColorRange2 [= color]
```

Value

color
A value or constant that determines the color of the background.

AckAlmBackColorRange3 Property

Gets or sets the acknowledged alarm background color. This color applies to the records shown in the control with state ACK_ALM with priorities in the range ColorPriorityRange2 to ColorPriorityRange3.

Type

Integer

Default

White

Syntax

```
Object.AckAlmBackColorRange3 [= color]
```

Value

color
A value or constant that determines the color of the background.

AckAlmBackColorRange4 Property

Gets or sets the acknowledged alarm background color. This color applies to the records shown in the control with state ACK_ALM with priorities in the range ColorPriorityRange3 to 999.

Type

Integer

Default

White

Syntax

```
Object.AckAlmBackColorRange4 [= color]
```

Value

color
A value or constant that determines the color of the background.

AckAlmForeColor Property

Gets or sets the acknowledged alarm foreground color. This setting overrides the individual range color settings for acknowledged alarms (AckAlmForeColorRange1 to AckAlmForeColorRange4).

Type

Integer

Default

Black

Syntax

```
Object.AckAlmForeColor [= color]
```

Value

color
A value or constant that determines the color of the text.

AckAlmForeColorRange1 Property

Gets or sets the acknowledged alarm foreground color. The color applies to the records shown in the control with state ACK_ALM with priorities in the range 1 to ColorPriorityRange1.

Type

Integer

Default

Black

Syntax

```
Object.AckAlmForeColorRange1 [= color]
```

Value

color
A value or constant that determines the color of the text.

AckAlmForeColorRange2 Property

Gets or sets the acknowledged alarm foreground color. The color applies to the records shown in the control with state ACK_ALM with priorities in the range ColorPriorityRange1 to ColorPriorityRange2.

Type

Integer

Default

Black

Syntax

```
Object.AckAlmForeColorRange2 [= color]
```

Value

color
A value or constant that determines the color of the text.

AckAlmForeColorRange3 Property

Gets or sets the acknowledged alarm foreground color. The color applies to the records shown in the control with state ACK_ALM with priorities in the range ColorPriorityRange2 to ColorPriorityRange3.

Type

Integer

Default

Black

Syntax

```
Object.AckAlmForeColorRange3 [= color]
```

Value

color
A value or constant that determines the color of the text.

AckAlmForeColorRange4 Property

Gets or sets the acknowledged alarm foreground color. The color applies to the records shown in the control with state ACK_ALM with priorities in the range ColorPriorityRange3 to 999.

Type

Integer

Default

Black

Syntax

```
Object.AckAlmForeColorRange4 [= color]
```

Value

color
A value or constant that determines the color of the text.

AckRtnBackColor Property

Gets or sets the background color of acknowledged alarms that return to normal (ACK_RTN).

Type

Integer

Default

White

Syntax

```
Object.AckRtnBackColor [= color]
```

Value

color
A value or constant that determines the color of the background.

AckRtnForeColor Property

Gets or sets the text color of acknowledged alarms that return to normal (ACK_RTN).

Type

Integer

Default

Blue

Syntax

```
Object.AckRtnForeColor [= color]
```

Value

color
A value or constant that determines the color of the text.

AlmRtnBackColor Property

Gets or sets the returned alarm background color. This color applies to the records shown with state ALM_RTN.

Type

Integer

Default

White

Syntax

```
Object.AlmRtnBackColor [= color]
```

Value

color
A value or constant that determines the color of the background.

AlmRtnForeColor Property

Gets or sets the returned alarm foreground color. This color applies to the records shown with state ALM_RTN.

Type

Integer

Default

Blue

Syntax

```
Object.AlmRtnForeColor [= color]
```

Value

color
A value or constant that determines the color of the text.

Authentication Property

Returns the Authentication Type selected in the Database tab.

Type

Message

Syntax

```
AType = AlarmDBCtrl1.Authentication;
```

Value

AType
A message value; either 'SQL Authentication' or 'Windows Authentication'.

AuthenticationMode Property

Sets the Authentication Mode.

Type

Integer

Syntax

```
Object.AuthenticationMode = [Int]
```

Value

Int
A integer value of 0 or 1. 0 denotes SQL Authentication and 1 denotes Windows Authentication.

AutoConnect Property

Gets or sets a value that determines whether the control automatically connects to the database at run time.

Data Type

Integer

Default

False

Syntax

```
Object.AutoConnect [= Integer]
```

Value

Integer
An integer expression specifying whether the control connects to the database at run time.
True = Connects to the database.
False = (Default) Does not connect to the database.

Remarks

You must explicitly call the Connect() method to connect to the database.

ColorPriorityRange1 Property

Sets the boundary of the priority range in which alarms are to be shown. The value of this property must be greater than one and less than the value for ColorPriorityRange2.

Type

Integer

Default

250

Syntax

```
Object.ColorPriorityRange1 [= integer or priority]
```

ColorPriorityRange2 Property

Sets the boundary of the priority range in which alarms are to be shown. The value of this property must be greater than the value for ColorPriorityRange1 and less than the value for ColorPriorityRange3.

Type

Integer

Default

500

Syntax

```
Object.ColorPriorityRange2 [= integer or priority]
```

ColorPriorityRange3 Property

Sets the boundary of the priority range in which alarms are to be shown. The value of this property must be greater than the value of ColorPriorityRange2 and less than 999.

Type

Integer

Default

750

Syntax

```
Object.ColorPriorityRange3 [= integer or priority]
```

ColumnResize Property

Returns or sets a value that determines whether the columns can be resized.

Type

Discrete

Default

True

Syntax

```
Object.ColumnResize [= Discrete]
```

Value

Discrete
True = (Default) Columns can be resized at runtime.

False = Columns cannot be resized.

ConnectStatus Property

Returns the status of the connection. This property is read-only.

Data Type

Message

Syntax

```
Object.ConnectStatus
```

Values

Connected = The control is connected to the database.
Not Connected = The control is not connected to the database.
In Progress = The control is connecting to the database.

Example

The name of the control is AlmDbView1 and tagname is a message tag.

```
Tagname = #AlmDbView1.ConnectStatus;
```

CustomMessage Property

Gets or sets the message that the Alarm DB View control shows when no alarm records can be retrieved from the alarm database.

Type

Message

Default

There are no items to show in this view.

Syntax

```
Object.CustomMessage [= string]
```

DatabaseName Property

Specifies the database to connect to.

Type

Message

Syntax

```
Object.DatabaseName [= text]
```

DisplayMode Property

Returns the display mode of the control, which determines if just alarms, just events, or both alarms and events are shown. This property is read-only.

Type

String

Default

Alarms & Events History

Syntax

```
Object.DisplayMode
```

Remarks

Possible values are:

Alarms & Events History
Alarms History
Events History

Example

The name of the control is AlmDbView1 and tag is a message tag.

```
tag = #AlmDbView1.DisplayMode;
```

DisplayedTimeZone Property

Gets or sets the shown time zone.

Type

String

Default

Local Time

Syntax

```
Object.DisplayedTimeZone [= message]
```

Remarks

Possible values are:

GMT - Alarm time stamps use Greenwich Mean Time.

Local Time - Alarm time stamps are shown with the local time of the client hosting the Alarm DB View control.

Origin Time - Alarm time stamps are shown with the local time of the alarm provider.

Duration Property

Gets or sets the duration used to set the start and end time.

Type

Message

Default

"Last Hour"

Syntax

```
Object.Duration [= text]
```

Value

text
A string expression that contains the duration. This property must have one of the following strings:
Last Minute
Last 5 Minutes
Last 15 Minutes
Last Half Hour
Last Hour
Last 2 Hours
Last 4 Hours
Last 8 Hours
Last 12 Hours
Last Day
Last 2 Days
Last 3 Days
Last Week
Last 2 Weeks
Last 30 days
Last 90 days

EndTime Property

Returns or sets the end time.

Type

Message

Syntax

```
Object.EndTime [= text]
```

Value

text
A string expression that evaluates to the end time. The string returned is always in the format (MM/DD/YYYY HH:MM:SS). The same format is also required to set the value of the string. This property handles date in any time zone from midnight, January 1, 1970, to January 18, 19:14:07, 2038.

EventBackColor Property

Gets or sets the event alarm background color. This color applies to the records shown in the control with state EVT_EVT.

Type

Integer

Default

White

Syntax

```
Object.EventBackColor [= color]
```

Value

color
A value or constant that determines the color of the background.

EventForeColor Property

Gets or sets the event alarm foreground color. This color applies to the records shown in the control with state EVT_EVT.

Type

Integer

Default

Red

Syntax

```
Object.EventForeColor [= color]
```

Value

color
A value or constant that determines the color of the text.

FilterFavoritesFile Property

Gets or sets the filter favorites file. This file is used by the **Filter Favorites** dialog box to read or write filter favorites.

Type

String

Default

Null

Syntax

```
Object.FilterFavoritesFile [= String]
```

FilterMenu Property

Gets or sets a value that determines whether the **Filter** menu item is shown in the shortcut menu.

Type

Discrete

Default

True

Syntax

```
Object.FilterMenu [= Discrete]
```

Value

True = **Filter** menu item is shown (default).

False = **Filter** menu item is not shown.

FilterName Property

Returns the name of the current filter (if any).

Type

String (read-only)

Default

Null

Syntax

```
Object.FilterName [= String]
```

FromPriority Property

Gets or sets the From Priority value of the control.

Type

Integer

Default

1

Syntax

```
Object.FromPriority [= integer]
```

Remarks

You can use this property to filter which alarm records are shown. For example, if you set this property to 760, then only alarms with priority from 760 to the ToPriority property value are shown.

GroupExactMatch Property

When the GroupExactMatch property is true, only alarms with alarm group names that exactly match the GroupName property value are shown. When it is false, then the group name need only specify part of the alarm group names it is filtering for.

Type

Discrete

Default

False

Syntax

```
Object.GroupExactMatch [= discrete]
```

Remarks

Use this property together with the GroupName property to filter the Alarm DB View control.

Example

For example:

```
#AlarmDBViewCtrl1.GroupName = "Group"
#AlarmDBViewCtrl1.GroupExactMatch = 0;
#AlarmDBViewCtrl1.Refresh();
```

GroupName Property

Gets or sets a alarm group name filter for the current Alarm DB View control.

Type

String

Default

(none)

Syntax

```
Object.GroupName [= GroupName]
```

Remarks

Setting this property to "GroupA" and re-querying the display shows only tags belonging to the GroupA alarm group.

MaxRecords Property

Returns or sets the maximum records to be retrieved.

Type

Integer

Default

100

Syntax

```
Object.MaxRecords [=integer]
```

Value

integer
An integer expression specifying the number of records to be retrieved at a given time. The maximum records can be in the range from 1 to 1000. For best performance keep this value as small as needed.

Password Property

Returns or sets the SQL Server password for retrieving data.

Type

Message

Syntax

```
Object.Password [= text]
```

Value

text
A string expression that evaluates to the password.

PrimarySort Property

Gets or sets the primary column name used to sort the alarm display.

Type

Message

Default

(none)

Syntax

```
Object.PrimarySort [= message]
```

ProviderExactMatch Property

When the ProviderExactMatch property is true, only alarms with alarm provider names that exactly match the ProviderName property value are shown. When it is false, then the provider name need only specify part of the alarm provider names it is filtering for.

Type

Discrete

Default

False

Syntax

```
Object.ProviderExactMatch [= discrete]
```

Remarks

Use this property together with the ProviderName property to filter the Alarm DB View control.

Example

For example:

```
#AlarmDBViewCtrl1.ProviderName = "Provider"
#AlarmDBViewCtrl1.ProviderExactMatch = 0;
#AlarmDBViewCtrl1.Refresh();
```

ProviderName Property

Gets or sets a alarm provider name filter for the current Alarm DB View control.

Type

String

Default

(none)

Syntax

```
Object.ProviderName [= ProviderName]
```

Remarks

If a tag belongs to the Provider1 alarm provider, then setting this property to "Provider1" and re-querying the display shows only tags belonging to the Provider1 alarm provider.

QueryTimeZoneName Property

Gets or sets the time zone when a specific time is used for the query.

Type

Discrete

Default

False

Syntax

```
Object.QueryTimeZone [= Discrete]
```

Value

True = GMT

False = Origin time, which is the local time of the alarm provider.

RefreshMenu Property

Gets or sets a value that determines whether the **Refresh** menu item is shown in the shortcut menu.

Type

Discrete

Default

True

Syntax

```
Object.RefreshMenu [= Discrete]
```

Value

True = **Refresh** menu item is shown (default).

False = **Refresh** menu item is not shown.

ResetMenu Property

Gets or sets a value that determines whether the **Reset** menu item is shown in the shortcut menu.

Type

Discrete

Default

True

Syntax

```
Object.ResetMenu [= Discrete]
```

Value

True = **Reset** menu item is shown (default).

False = **Reset** menu item is not shown.

RowCount Property

Returns the number of records shown in the control. This property is read-only.

Type

Integer

Syntax

```
Object.RowCount
```

Example

The name of the control is AlmDbView1 and tagname an integer tag.

```
tagname = #AlmDbView1.RowCount;
```

RowSelection Property

Returns or sets a value that determines whether the row selection is allowed at run time.

Type

Discrete

Default

True

Syntax

```
Object.RowSelection [= Discrete]
```

Value

Discrete

True = (Default) Row selection is allowed.

False = Row Selection is not allowed.

Remarks

If row selection is not allowed, no Click or DoubleClick events are generated.

SecondarySort Property

Gets or sets the secondary column name used to sort the alarm display.

Type

Message

Default

(none)

Syntax

```
Object.SecondarySort [= text]
```

ServerName Property

Returns or sets the server name to which the control connects to retrieve data.

Type

Message

Syntax

```
Object.ServerName [= text]
```

ShowFetch Property

Returns or sets a value that determines whether the retrieval buttons are shown.

Type

Discrete

Default

True

Syntax

```
Object.ShowFetch [= Discrete]
```

Value

Discrete
True = (Default) Retrieve buttons are shown.
False = Retrieve buttons are not shown.

ShowGrid Property

Returns or sets a value that determines whether the grid lines are shown.

Type

Discrete

Default

False

Syntax

```
Object.ShowGrid [= Discrete]
```

Value

Discrete
True = Grid lines are shown.
False = (Default) Grid lines are not shown.

ShowHeading Property

Returns or sets a value that determines whether the column headings are shown.

Type

Discrete

Default

True

Syntax

```
Object.ShowHeading [= Discrete]
```

Value

Discrete
True = (Default) Column headings are shown.
False = Column headings are not shown.

ShowMessage Property

Determines if the customized message for "There are no items to show in this view" is shown when there are no records in the alarm database.

Type

Discrete

Default

False

Syntax

```
Object.ShowMessage [= discrete]
```

ShowStatusBar Property

Returns or sets a value that determines whether the status bar is shown.

Type

Discrete

Default

True

Syntax

```
Object.ShowStatusBar [= Discrete]
```

Value

Discrete
True = (Default) Status bar is shown.
False = Status bar is not shown.

SilentMode Property

Gets or sets a value that determines whether the control is in Silent mode.

Type

Discrete

Default

False

Syntax

```
Object.SilentMode [= Discrete]
```

Value

True = Silent mode is on.

False = Silent mode is off (default).

SortMenu Property

Returns or sets a value that determines whether the **Sort** menu item is shown in the shortcut menu.

Type

Discrete

Default

`True`

Syntax

```
Object.SortMenu [= Discrete]
```

Value

A discrete expression.

True = (Default) **Sort** menu item is shown

False = **Sort** menu item is not shown.

SortOrder Property

Gets or sets the sort order of the alarms according to the column to be sorted (the primary sort column).

Type

Discrete

Default

True

Syntax

```
Object.SortOrder [= discrete]
```

Value

An discrete expression.

True = Ascending order.

False = Descending order.

SpecificTime Property

Returns or sets a value that determines whether the control uses the StartTime and EndTime properties, or computes the start time and end time based on the value of the Duration property.

Type

Discrete

Default

`False`

Syntax

```
Object.SpecificTime [= Discrete]
```

Value

True = StartTime and EndTime properties are used.

False = (Default) StartTime and EndTime are computed based on the "Duration" property.

StartTime Property

Returns or sets the start time.

Type

Message

Syntax

```
Object.StartTime [= text]
```

Value

text
A string expression that evaluates to the Start Time. The string returned is always in the format (MM/DD/YYYY HH:MM:SS). The same format is also required to set the value of the string. This property handles date in any time zone from midnight, January 1, 1970, to January 18, 19:14:07, 2038

Time Property

Gets and sets the time format to be used in the display.

Type

Message

Default

%m/%d/%Y %I:%M:%S %p

Syntax

```
Object.Time [= message]
```

Remarks

For more information on the time format strings, see *Configuring the Shown Time Format and Time Zone for Alarm Records* on page 229.

ToPriority Property

Gets or sets the To Priority value of the control.

Type

Integer

Default

999

Syntax

```
Object.ToPriority [= integer]
```

Remarks

Use this property to filter which alarm records are shown. For example, if you set this property to 900, then only alarms with priority from the FromPriority property value to 900 are shown.

TotalRowCount Property

Returns the total number of records for the current query. This property is read-only.

Type

Integer

Syntax

```
Object.TotalRowCount
```

Remarks

The row count is the number of rows returned in the current query, which usually would be same as MaxRecords property except for the case when number of records retrieved are less than the MaxRecords property. For example, if there are 950 records for a specific criterion and the MaxRecords property is 100, then in the last page there would be 50 records and the row count would be 50. In the same example, the TotalRowCount property would always be 950.

Example

The name of the control is AlmDbView1 and tagname is an integer tag.

```
tagname = #AlmDbView1.TotalRowCount;
```

UnAckAlmBackColor Property

Gets or sets the unacknowledged alarm background color. This color applies to all records shown in the control with state UNACK_ALM. It overrides any settings made by the UnAckAlmBackColorRange1 to UnAckAlmBackColorRange4 property values.

Type

Integer

Default

White

Syntax

```
Object.UnAckAlmBackColor [= color]
```

Value

color
A value or constant that determines the color of the specified object.

UnAckAlmBackColorRange1 Property

Gets or sets the unacknowledged alarm background color. This color applies to the records shown in the control with state UNACK_ALM with priorities in the range 1 to ColorPriorityRange1.

Type

Integer

Default

White

Syntax

```
Object.UnAckAlmBackColorRange1 [= color]
```

Value

color
A value or constant that determines the color of the specified object.

UnAckAlmBackColorRange2 Property

Gets or sets the unacknowledged alarm background color. This color applies to the records shown in the control with state UNACK_ALM with priorities in the range ColorPriorityRange1 to ColorPriorityRange2.

Type

Integer

Default

White

Syntax

```
Object.UnAckAlmBackColorRange2 [= color]
```

Value

color
A value or constant that determines the color of the specified object.

UnAckAlmBackColorRange3 Property

Gets or sets the unacknowledged alarm background color. This color applies to the records shown in the control with state UNACK_ALM with priorities in the range ColorPriorityRange2 to ColorPriorityRange3.

Type

Integer

Default

White

Syntax

```
Object.UnAckAlmBackColorRange3 [= color]
```

Value

color
A value or constant that determines the color of the specified object.

UnAckAlmBackColorRange4 Property

Gets or sets the unacknowledged alarm background color. This color applies to the records shown in the control with state UNACK_ALM with priorities in the range ColorPriorityRange3 to 999.

Type

Integer

Default

White

Syntax

```
Object.UnAckAlmBackColorRange4 [= color]
```

Value

color
A value or constant that determines the color of the specified object.

UnAckAlmForeColor Property

Gets or sets the unacknowledged alarm text color. This color applies to all records shown in the control with state UNACK_ALM. It overrides any settings made by the UnAckAlmForeColorRange1 to UnAckAlmForeColorRange4 property values.

Type

Integer

Default

Red

Syntax

```
Object.UnAckAlmBackColor [= color]
```

Value

color
A value or constant that determines the color of the text.

UnAckAlmForeColorRange1 Property

Gets or sets the unacknowledged alarm foreground color. This color applies to the records shown in the control with state UNACK_ALM with priorities in the range 1 to ColorPriorityRange1.

Type

Integer

Default

Red

Syntax

```
Object.UnAckAlmForeColorRange1 [= color]
```

Value

color
A value or constant that determines the color of the specified object.

UnAckAlmForeColorRange2 Property

Gets or sets the unacknowledged alarm foreground color. This color applies to the records shown in the control with state UNACK_ALM with priorities in the range ColorPriorityRange1 to ColorPriorityRange2.

Type

Integer

Default

Red

Syntax

```
Object.UnAckAlmForeColorRange2 [= color]
```

Value

color
A value or constant that determines the color of the specified object.

UnAckAlmForeColorRange3 Property

Gets or sets the unacknowledged alarm foreground color. This color applies to the records shown in the control with state UNACK_ALM with priorities in the range ColorPriorityRange2 to ColorPriorityRange3.

Type

Integer

Default

Red

Syntax

```
Object.UnAckAlmForeColorRange3 [= color]
```

Value

color
A value or constant that determines the color of the specified object.

UnAckAlmForeColorRange4 Property

Gets or sets the unacknowledged alarm foreground color. This color applies to the records shown in the control with state UNACK_ALM with priorities in the range ColorPriorityRange3 to 999.

Type

Integer

Default

Red

Syntax

```
Object.UnAckAlmForeColorRange4 [= color]
```

Value

color
A value or constant that determines the color of the specified object.

UnAckOrAlarmDuration Property

The duration column shows either UNACK Duration or Alarm Duration. FALSE (0) is UNACK Duration and TRUE (1) is Alarm Duration.

Type

Integer

Default

False

Syntax

```
Object.UnAckOrAlarmDuration [= integer]
```

UserID Property

Returns or sets the user ID used as the control to connect to the SQL Server to retrieve the data.

Type

Message

Syntax

```
Object.UserID [= text]
```

Value

text
A string expression that evaluates the user ID.

Using Alarm DB View ActiveX Methods

Use the Alarm DB View ActiveX methods to:

- Control the database connection.
- Retrieve records from the alarm database.
- Retrieve information about an alarm.
- Reset the display appearance.
- Sort alarm records.

- Show the **Context** menu.
- Access filter favorites.

For more information about calling methods, see Scripting ActiveX Controls in the InTouch® HMI Scripting and Logic Guide.

Controlling Alarm Database Connections

Use the Connect() method to connect to the alarm database and the Disconnect() method to disconnect.

Connect()

Connects the control to the database and if the connection is successful, shows the set of records in the range 1 to MaxRecords.

Syntax

```
Object.Connect
```

Example

The name of the control is AlmDbView1.

```
#AlmDbView1.Connect();
```

Disconnect()

Disconnects the control from the database.

Syntax

```
Object.Disconnect
```

Example

The name of the control is AlmDbView1.

```
#AlmDbView1.Disconnect();
```

Retrieving Alarm Records from the Database

Use the following methods to select a query, retrieve records from the database, and refresh the display:

- *SelectQuery()* on page 267
- *GetPrevious()* on page 268
- *GetNext()* on page 268
- *Refresh()* on page 268

SelectQuery()

Sets the current display to the query name specified in the .xml file.

Syntax

```
Object.SelectQuery(“QueryName”);
```

Parameters

QueryName
Name of a query defined in the filter favorites file.

Example

This example applies the filter criteria defined by the query called "HighPriority" in the filter favorites file that is currently associated with the AlmDbView1 control.

```
#AlmDbView1.SelectQuery("HighPriority");
```

GetPrevious()

Retrieves the previous set of records from the database (if any).

Syntax

```
Object.GetPrevious();
```

Example

The name of the control is AlmDbView1.

```
#AlmDbView1.GetPrevious();
```

GetNext()

Retrieves the next set of records from the database (if any).

Syntax

```
Object.GetNext
```

Example

The name of the control is AlmDbView1.

```
#AlmDbView1.GetNext();
```

Refresh()

Refreshes the control from the database, and if the connection is successful, displays the set of records in the range 1 to MaxRecords.

Syntax

```
Object.Refresh
```

Remarks

After initiating a refresh of the Alarm DB View control's display by calling its Refresh() method, the value of the RowCount and TotalRowCount properties change to -1 until the refresh is complete (that is, all relevant records are retrieved from the database). When the refresh is complete, both properties are updated with the correct, current row count.

The Refresh() method works asynchronously - it returns control to the calling script immediately and continues working in the background. This means that querying the value of RowCount and TotalRowCount immediately after calling Refresh() most likely returns -1, as their value is queried at a time when the refresh still hasn't completed. One way to get the correct values would be to use scripting to determine when the value of either property changes from -1 to a different value; this tells you that the correct values are now available.

Example

The name of the control is AlmDbView1.

```
#AlmDbView1.Refresh();
```

Retrieving Information About an Alarm

Use the following methods to retrieve records from the database about a particular alarm:

- *GetItem() Method* on page 76
- *GetSelectedItem() Method* on page 269

GetItem() Method

Returns the data at a specified row & column as string.

Syntax

```
Object.GetItem(Integer, message)
```

Parameters

Integer
An integer expression that evaluates to a specific row in the control.

Message
A string expression that evaluates to the column name in the control.

Example

The name of the control is AlmDbView1 and tag is defined as a Message tag.

```
tag = #AlmDbView1.GetItem(1, "Group");
```

GetSelectedItem() Method

Returns the data for the selected row, given column as string

Syntax

```
Object.GetSelectedItem(message)
```

Parameters

Message
An string expression that evaluates to the column name in the control

Example

The name of the control is AlmDbView1 and tag is defined as Message tag.

```
tag = #AlmDbView1.GetSelectedItem("State");
```

Sorting the Alarm Records

Use the following methods to sort alarm records and reset column resizing:

- *SortOnCol() Method* on page 270
- *ShowSort() Method* on page 80

- *Reset() Method* on page 270

SortOnCol() Method

Performs primary sorting on alarm records that are shown.

Syntax

```
Object.SortOnCol(Message, Integer)
```

Parameters

Message
A string expression that evaluates to the column name in the control

Integer
Sort direction to be used. 0 = ascending, 1 = descending.

Example

The name of the control is AlmDbView1.

```
tag = #AlmDbView1.SortOnCol("Name",1);
```

ShowSort() Method

Shows the **Secondary Sort** dialog box if the SortMenu property is enabled.

Syntax

```
Object.ShowSort()
```

Example

The name of the control is AlmDbView1.

```
#AlmDbView1.ShowSort();
```

Reset() Method

Resets all the columns to the settings saved at design time.

Syntax

```
Object.Reset
```

Example

The name of the control is AlmDbView1.

```
#AlmDbView1.Reset();
```

Showing the Context Menu

Use the ShowContext() method to show the shortcut menu.

ShowContext() Method

Shows the shortcut menu if any one of RefreshMenu or ResetMenu or SortMenu property is enabled.

Syntax

```
Object.ShowContext()
```

Example

The name of the control is AlmDbView1.

```
#AlmDbView1.ShowContext();
```

Accessing Filter Favorites

Use the ShowFilter() method to show the **Filter Favorites** dialog box.

ShowFilter() Method

Shows the **Filter Favorites** dialog box.

Syntax

```
Object.ShowFilter
```

Example

The name of the control is AlmDbView1.

```
#AlmDbView1.ShowFilter();
```

Showing Other Information

Use the AboutBox() method to show the **About** dialog box.

AboutBox() Method

Shows the **About** dialog box.

Syntax

```
Object.AboutBox()
```

Example

The name of the control is AlarmPareto1.

```
#AlarmPareto1.AboutBox();
```

Handling Errors With Using Methods and Properties

Use the SilentMode property to determine whether the control is in silent mode or not. When the control is in silent mode, no error messages are shown. To see the error, call the GetLastError() method to return the error message.

GetLastError() Method

Returns the last error message if the Alarm DB View control is in silent mode.

Syntax

```
Object.GetLastError()
```

Example

The name of the control is AlmDbView1 and Tagname is defined as variant or string.

```
Tagname = #AlmDbView1.GetLastError();
```

Using Alarm DB View ActiveX Events to Trigger Scripts

You can assign QuickScripts to Alarm DB View control events, such as a mouse click or double-click. When the event occurs, the QuickScript runs.

The Alarm DB View control supports the following events:

- Click
- DoubleClick
- ShutDown
- StartUp

The Click event has one parameter called ClicknRow, which identifies the row that is clicked at run time.

The DoubleClick event has one parameter called DoubleClicknRow, which identifies the row that is double-clicked at run time.

Click and DoubleClick events are zero-based. When Click and/or DoubleClick events are published, the bar count in the display starts with 0.

Note: The Alarm DB View control ignores the user interface methods when they are called from StartUp event, because the control is not visible yet. These methods include: ShowSort(), ShowContext(), GetSelectedItem(), GetNext(), GetPrevious(), and AboutBox().

For more information about scripting ActiveX events, see Scripting ActiveX Controls in the InTouch® HMI Scripting and Logic Guide.

Chapter 11

Analyzing Alarm Distribution Across Tags

About Analyzing Alarm Distribution Across Tags

Using the Alarm Pareto ActiveX control, you can analyze which alarms and events occur most frequently in a given production system. You can also analyze alarm frequency by the time periods during which they occur.

The analysis capabilities of the Alarm Pareto control identify the largest issues of your production systems. The Alarm Pareto control helps you recognize where you should focus your efforts to achieve the most significant improvements.

The Alarm Pareto control shows a bar chart representing alarm activity.

For more information about ActiveX controls, see ActiveX Controls in the InTouch® HMI Visualization Guide.

Configuring an Alarm Pareto ActiveX Control

When you configure an Alarm Pareto control, you specify:

- The connection to the alarm database.
- The appearance of the pareto control, including colors and fonts.
- Which features users can access at run time.
- Which alarms are shown in the chart and how they are presented.

Configuring the Connection to the Alarm Database

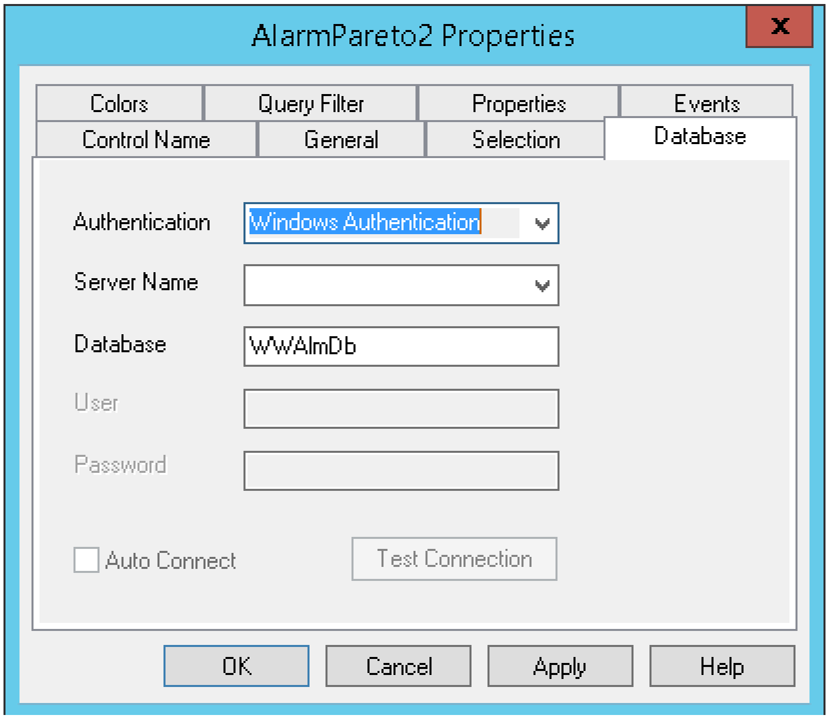
You must configure the connection between the Alarm Pareto control and the alarm database.

It is good practice to use an account with appropriate read-only access to the alarm database and not a system administrator account.

To configure the connection to the alarm database

1. Right-click the Alarm Pareto control and then click **Properties**. The **AlarmPareto Properties** dialog box appears.

2. Click the **Database** tab.



AlarmPareto2 Properties

Authentication Windows Authentication

Server Name

Database WWAlmDb

User

Password

□ Auto Connect

3. Configure the connection. Do the following:

   a. In the **Authentication** list, select the authentication method: SQL Server Authentication or Windows Authentication (default).

Note: When you switch from Windows Authentication to SQL Authentication, a pop up dialog will appear with a recommendation to use Windows Authentication for better application security. To proceed with SQL Authentication, click **OK**.

A similar message is also logged in the SMC Log Viewer.

   b. In the **Server Name** box, enter the node name of the computer where the alarm database is installed.

   c. In the **Database Name** box, type the name of the alarm database.

   d. In the **User** box, type the name of a valid user account for the alarm database.

   e. In the **Password** box, type the password associated with the alarm database user account.

Note: The Windows Authentication method uses the credentials of the user currently logged in, and disables the user name and password fields.

4. Select the **Auto Connect** check box if you want the Alarm Pareto control to automatically connect to the alarm database as soon as WindowViewer starts up.

   If you don’t select the **Auto Connect** check box, you must configure the Alarm Pareto control to connect to the alarm database by explicitly calling the Connect() method. For more information about the Connect method, see *Connect() Method* on page 287.

5. Click **Test Connection** to verify connectivity to the alarm database. A message indicates a successful connection.

6. Click **Apply**.

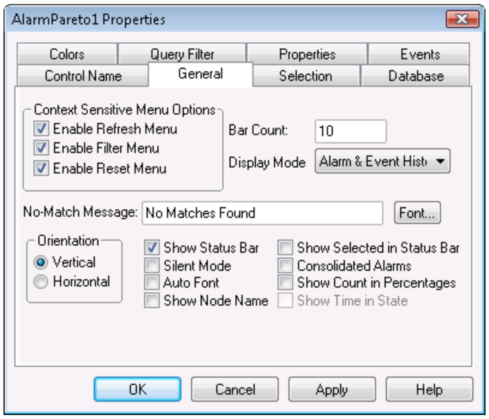
Configuring the Appearance and Colors of the Alarm Pareto Control

You can configure the visual appearance of the Alarm Pareto control. You can:

- Include a status bar.
- Set the orientation of the Pareto chart bars.
- Include descriptions of chart bars.
- Select the colors of the Alarm Pareto chart.

To set the appearance of the Alarm Pareto control

1. Right-click the Alarm Pareto control and then click **Properties**. The **AlarmPareto Properties** dialog box appears.
2. Click the **General** tab.



Context Sensitive Menu Options
☑ Enable Refresh Menu
☑ Enable Filter Menu
☑ Enable Reset Menu

Bar Count: 10
Display Mode: Alarm & Event Hist

No-Match Message: No Matches Found

Orientation
● Vertical
○ Horizontal

☑ Show Status Bar
□ Silent Mode
□ Auto Font
□ Show Node Name
□ Show Selected in Status Bar
□ Consolidated Alarms
□ Show Count in Percentages
□ Show Time in State

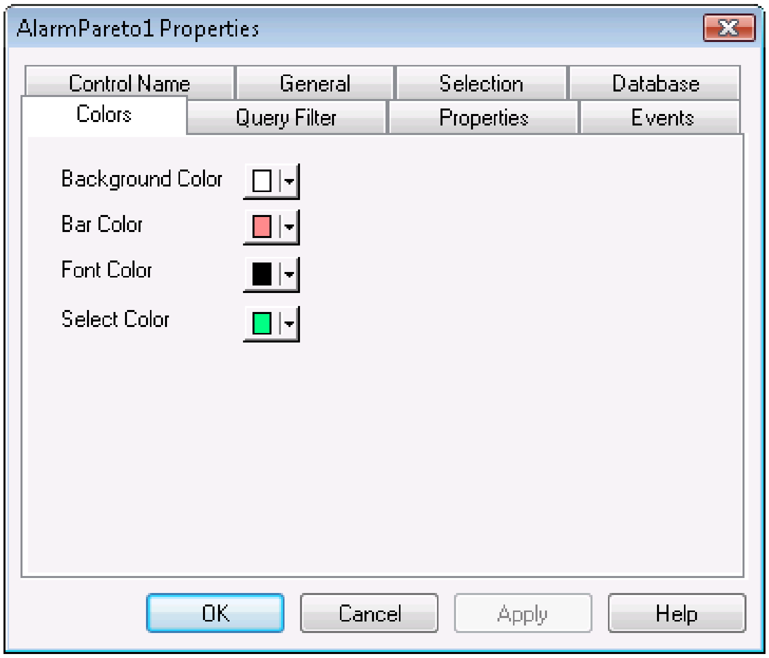
3. Configure the general options. Do the following:

Property	Description
Bar Count	Sets the number of bars to view in the Alarm Pareto control.
Display Mode	This list shows the available view options. The options are Alarm & Event History, Alarm History, and Event History.
No-Match Message	Sets the message to show when no data is processed from the Alarm Pareto control.
Vertical	Shows the bars on a vertical scale.
Horizontal	Shows the bars on a horizontal scale.
Show Status Bar	Enables the status bar.
Silent Mode	The Alarm Pareto control does not show run-time error messages. If it is not selected, the alarm display shows error messages. Error messages are always sent to the Logger.

Property	Description
Auto Font	When the space available is not enough to show the text on the selected bar correctly, Auto Font hides the text and only shows the text when the bar is selected.
Show Node Name	Shows the node name on the bar graph.
Show Selected in Status Bar	Shows the description of a selected bar on the status bar.
Consolidated Alarms	Consolidate the alarm states into two states. For example, if an analog tag has a three- state alarm: Hi, HiHi and Normal, the Hi and HiHi alarm states are classified as one state.
Show Count in Percentages	Shows the bars based on the percentage of count to the total count.
Show Time in State	Shows the Alarm Pareto control based on the time each tag is in an alarm state. This option is only enabled when the display mode is set to Alarm History.

4. Click **Apply**.

5. Click the **Colors** tab.



6. Click each color box to open a color palette.

7. Click the color that you want to assign for each of the following chart properties:

Property	Description
Background Color	Sets the background color of the Alarm Pareto chart
Bar Color	Sets the bar color of the chart
Font Color	Sets the color of text that appears in the chart
Select Color	Sets the color of a selected bar

8. Click **Apply**.

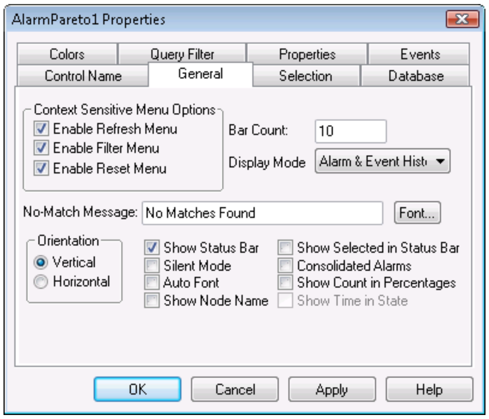
Configuring the Display of the Font

You can assign font properties to text that appears in your Alarm Pareto chart.

To configure the font properties

1. Right-click the Alarm Pareto control and then click **Properties**. The **AlarmPareto Properties** dialog box appears.

2. Click the **General** tab.



AlarmPareto1 Properties

Context Sensitive Menu Options
☑ Enable Refresh Menu
☑ Enable Filter Menu
☑ Enable Reset Menu

Bar Count: 10
Display Mode: Alarm & Event Hist

No-Match Message: No Matches Found

Orientation
● Vertical
○ Horizontal

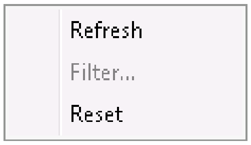
☑ Show Status Bar
☐ Silent Mode
☐ Auto Font
☐ Show Node Name
☐ Show Selected in Status Bar
☐ Consolidated Alarms
☐ Show Count in Percentages
☐ Show Time in State

3. Click Font. The standard Windows **Font** dialog box appears. Configure the font and then click **OK**.

4. Click **OK**.

Configuring Which Features Users can Access at Run Time

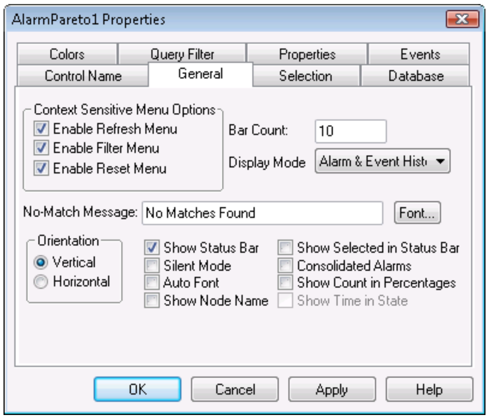
An Alarm Pareto chart includes a shortcut menu. When an operator right-clicks on the trend during run time, a menu appears with options to dynamically update the data shown in the trend.



To configure run time features

1. Right-click the Alarm Pareto control and then click **Properties**. The **AlarmPareto Properties** dialog box appears.

2. Click the **General** tab.



Context Sensitive Menu Options
☑ Enable Refresh Menu
☑ Enable Filter Menu
☑ Enable Reset Menu

Bar Count: 10
Display Mode: Alarm & Event Hist

No-Match Message: No Matches Found

Orientation
● Vertical
○ Horizontal

☑ Show Status Bar
□ Silent Mode
□ Auto Font
□ Show Node Name
□ Show Selected in Status Bar
□ Consolidated Alarms
□ Show Count in Percentages
□ Show Time in State

3. In the **Context Sensitive Menu Options** area, configure the menu commands:

   a. Select the **Enable Refresh Menu** check box to allow the run time user to refresh the data shown in the Alarm Pareto trend and show the records in the range from 1 to the number defined by the MaxRecords property.

   b. Select the **Enable Filter Menu** check box to allow the user to show the **Filter Favorites** dialog box to select a file containing database query values for the Alarm Pareto trend.

   c. Select the **Enable Reset Menu** check box to allow the user to restore the run-time Alarm Pareto chart to the original values specified from WindowMaker. All run-time changes made by an operator revert to the original design-time values.

4. Click **Apply**.

Configuring Which Alarms to Analyze

You configure which alarms to analyze using the Alarm Pareto chart. You specify:

- The type of database data (alarm or event data)
- A time period to select records from
- Criteria for filtering the data

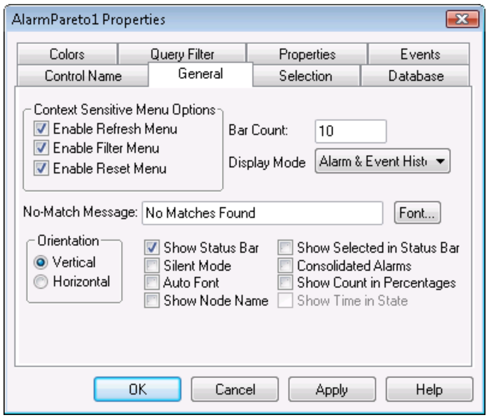
Selecting Alarm or Event Data

You can configure if alarm records, event records, or both appear in an Alarm Pareto chart.

To select the type of data

1. Right-click the Alarm Pareto control and then click Properties. The AlarmPareto Properties dialog box appears.

2. Click the General tab.



AlarmPareto1 Properties

Context Sensitive Menu Options
☑ Enable Refresh Menu
☑ Enable Filter Menu
☑ Enable Reset Menu

Bar Count: 10

Display Mode: Alarm & Event Hist

No-Match Message: No Matches Found

Orientation
● Vertical
○ Horizontal

☑ Show Status Bar
☐ Silent Mode
☐ Auto Font
☐ Show Node Name
☐ Show Selected in Status Bar
☐ Consolidated Alarms
☐ Show Count in Percentages
☐ Show Time in State

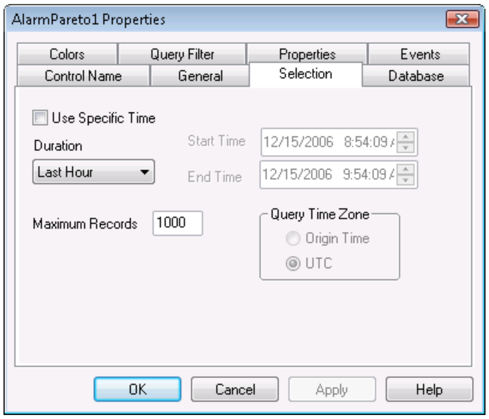
3. In the **Display Mode** list, configure the type of records. Do any of the following.
   - Click **Alarm & Event History** to show both alarm and event historical database records.
   - Click **Alarm History** to show only historical alarm records.
   - Click **Event History** to show only historical event records.
4. Click **Apply**.

Selecting the Time Period

You can set query values to select records based on the selected time. You can also configure the maximum number of records to view, the start and end time of the alarm query, and the query time zone.

To select the time period of data

1. Right-click the Alarm Pareto control and then click Properties. The AlarmPareto Properties dialog box appears.
2. Click the **Selection** tab.



AlarmPareto1 Properties

☐ Use Specific Time

Duration: Last Hour

Start Time: 12/15/2006 8:54:09 A

End Time: 12/15/2006 9:54:09 A

Maximum Records: 1000

Query Time Zone
○ Origin Time
● UTC

3. To use a pre-defined time interval that always queries for data using UTC, click an interval from the **Duration** list.
4. To use a specific start time and end time, click **Use Specific Time** and then configure the details.

a. In the **Start Time** box, enter the start time to retrieve the alarm records. The string must be in MM/DD/YYYY HH:MM:SS format. Use any date in any time zone from midnight, January 1, 1970, to January 18, 19:14:07, 2038.

b. In the **End Time** box, enter the end time to stop retrieving alarm records. The string must be in MM/DD/YYYY HH:MM:SS format. Use any date in any time zone from midnight, January 1, 1970, to January 18, 19:14:07, 2038.

c. In the **Query Time Zone** area, click either **UTC** or **Origin Time**. UTC time is Greenwich Mean Time, also known as Coordinated Universal Time or Zulu. Origin time is the current time in the operator’s time zone.

5. In the **Maximum Records** box, type the number of records to view from the control at one instance. The valid range of maximum records is from 0 to 1000000.

6. Click **Apply**.

Creating Custom Filters Using Filter Favorites

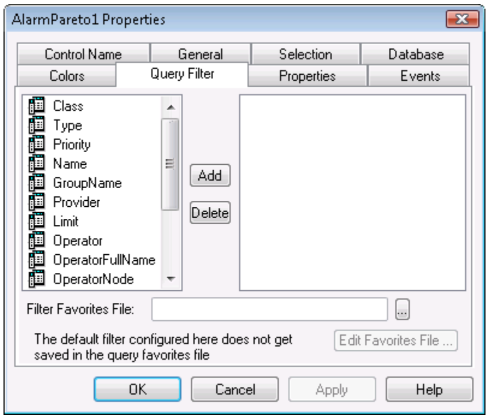
You can select which records are included in your query results. For example, you can select a filter by the date of a record or the state of the alarm. You can select multiple fields to limit or expand your query results.

If you do not define a custom filter, then a default filter that queries all records is used.

To create custom filters

1. Right-click the Alarm Pareto control and then click Properties. The AlarmPareto Properties dialog box appears.

2. Click the Query Filter tab.



The default filter configured here does not get saved in the query favorites file

3. In the left pane, select filter fields and then click **Add** to include them in the filter, which is shown in the right pane. The filter fields are described in the following table:

Field name	Filters query by:
Class	Alarm class.
Type	Alarm type.
Priority	Alarm priority.

Field name	Filters query by:
Name	Alarm name.
GroupName	Alarm group name.
Provider	Alarm provider.
Limit	Alarm limit. Values are alphanumeric. The comparisons of these values in the Query Filter are done as a string comparisons.
Operator	Operator.
OperatorFullName	Operator's full name.
OperatorNode	Operator's node name associated with the alarm.
OperatorDomain	Operator's domain name associated with the alarm.
Comment	Alarm comment.
User1	Alarm user-defined numeric value 1.
User2	Alarm user-defined numeric value 2.
User3	Alarm user-defined string value.
Duration	Unacknowledgement and alarm duration. A Duration column set equal to zero does not produce records with a null value in the query.

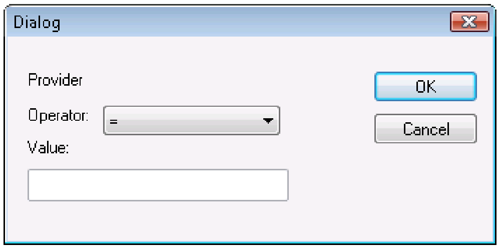
4. To remove a field from the filters pane, click the field you want to delete and click Delete. Deleting a filter cannot be undone. When a message appears, click Yes.
5. Configure the criteria for each filter field. For more information, see *Defining the Column Filter Criteria* on page 235.
6. Configure the operators and grouping for the filter. For more information, see *Grouping Alarm Columns* on page 236.
7. Configure the filter favorites file.
   a. In the Filter Favorites File box, type the network path and file name or click the ellipse button to browse for the file.
   b. To edit the **Filter Favorites** file, click the **Edit Favorites File** button. The **Filter Favorites** window opens, allowing you to add, modify, or delete filters from your favorites file. When you are done, click **OK** to save your changes and close the window.
8. Click **Apply**.

Defining the Column Filter Criteria

For each column filter you include in the query, you must configure the filter criteria. For example, you might want to only see alarms for a specific operator.

To define a column filter

1. Right-click the field and then click Edit Filter. The Dialog dialog box appears.



2. In the Operator list, select the operator you need.
3. In the Value box, type the criteria that must be matched. The **Value** box does not accept values that cannot be processed for the selected query. The **Value** box accepts the following wildcard characters when the **Like** and **Not Like** filter operators are used for alphanumeric column names:

Character	Finds
%	Any string of zero or more characters
_	Any single character
[ ]	Any single character within the specified range, for example [a-f], or within a set, for example [abcdef].
[^]	Any single character not within the specified range, for example [^a-f], or set, for example [^abcdef].

The following Value box limits apply to different fields:

Field	Limit
All fields	All alphanumeric characters except User1, User2 and Priority.
Priority	Accepts integer values from 1 to 999.
User1, User2	Accepts only negative, positive or fractional numbers.

4. Click **OK**.

Grouping Alarm Columns

When more than one field is defined, the columns are combined using Boolean operators.

- The AND operator returns records that meet all values of the selected fields.
- The OR operator returns records that meet the values of any of the selected fields.

To use AND/OR operators to set the filter selection criteria, the respective fields must be grouped together. Only a single filter expression can be created on an item in the filters pane. If multiple expressions are needed, then the item must be added to the filters pane again.

By default, the grouped fields have the AND operator.

The AND and OR operators are parent nodes. The fields selected under each parent node are child nodes. You cannot drag fields parent nodes to child nodes.

To group alarm columns

1. Right-click the field and then click Group.
2. Drag a field onto another field.

Copying or Moving Query Filters

If you have more than one instance of Alarm Pareto control and want to use the same filters for multiple instances, you can copy or cut the defined filters from one instance and paste them to another filter.

To copy filters

1. Define the filters in the first instance of the Alarm Pareto control.
2. Right-click the filters and click **Copy**. To move the filters, click **Cut**.
3. Close the first instance of the Alarm Pareto control.
4. Open the next instance of the Alarm Pareto control and click the **Query Filter** tab.
5. Position the arrow in the right pane. Right-click on a selected filter and click **Paste**.

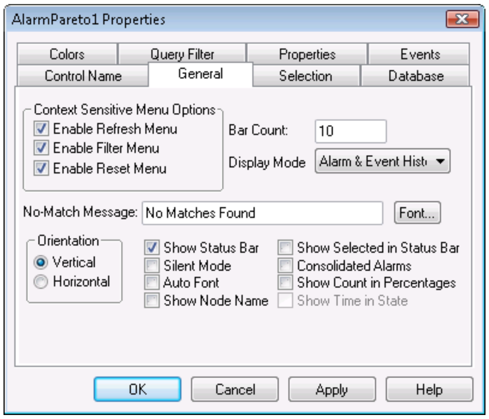
Configuring the Presentation of the Analysis Results

You can configure the presentation of the alarms in the query results.

To configure the presentation

1. Right-click the Alarm Pareto control and then click Properties. The AlarmPareto Properties dialog box appears.

2. Click the General tab.



Context Sensitive Menu Options
☑ Enable Refresh Menu
☑ Enable Filter Menu
☑ Enable Reset Menu

Bar Count: 10
Display Mode: Alarm & Event Hist

No-Match Message: No Matches Found Font...

Orientation
● Vertical
○ Horizontal

☑ Show Status Bar
□ Silent Mode
□ Auto Font
□ Show Node Name
□ Show Selected in Status Bar
□ Consolidated Alarms
□ Show Count in Percentages
□ Show Time in State

3. Select the **Consolidated Alarms** check box to combine alarms from a multi-state alarm into a single time stamped record.

4. Select the **Show Count in Percentages** check box to add a percentage of the total for each bar shown in the graph.

5. Click **Apply**.

Using an Alarm Pareto Control at Run Time

Right-click on the Alarm Pareto control during run time to open a shortcut menu. The following table lists all possible options that appear in the shortcut menu.

Menu Option	Description
Refresh	Refreshes the display.
Filter	Allows you to edit the filter to change the data received by the Pareto control. This menu item is only available if a filter favorites file is set up.
Reset	Resets the graph to the default query.

Understanding Information Shown on the Status Bar

The status bar for the Alarm Pareto control shows:

- The status of the database connection between the control and the alarm database.
- The update status of the graph to refresh the data shown in the graph.

Using Alarm Pareto ActiveX Properties

You can set the value an Alarm Pareto control property directly using a script or you can assign it to an InTouch tag or I/O reference. For more information about setting properties, see Scripting ActiveX Controls in the InTouch® HMI Scripting and Logic Guide.

The following table list the Alarm Pareto properties. For information on setting color values, see *Configuring Colors for ActiveX Controls* on page 68.

Property Name	**Purpose**
Authentication	Returns the Authentication Type selected in the Database tab.
AuthenticationMode	Sets a value that determines the Authentication Type (0 for SQL Authentication, 1 for Windows Authentication)
AutoConnect	Returns or sets a value that determines whether the control connects to the database as soon as the control is in run-time mode.
AutoFont	When the space available is not enough to show the text on the selected bar correctly, Auto Font hides the text and only shows the text on the selected bar when the bar is selected.
BackGndColor	Sets the background color of the Alarm Pareto chart
BarColor	Sets the bar color of the Alarm Pareto control.
BarCount	Sets the number of bars that appear on the Alarm Pareto control.
BarSelectColor	Sets the color of the selected bar in the Alarm Pareto Control.
Connected	Determines if the Alarm Pareto control is connected to a database.
ConsolidatedAlarms	Consolidates the alarm states into two states. For example, if an analog tag has a three state alarm: Hi, HiHi and Normal, the Hi and HiHI alarm states are classified as one state.
DatabaseName	Sets the database name to which the Alarm Pareto control has to connect.
DisplayMode	Sets the display mode. The display mode options are Alarm & Event History, Alarm History or Event History.
Duration	Returns or sets the duration used by the control to set the "Start Time" and "End Time".

Property Name	**Purpose**
EnableRefresh	Enables or disables the context menu to refresh the Alarm Pareto control.
EnableReset	Enables or disables the context menu used to reset the Alarm Pareto control.
EnableSilentMode	Enables or disables the Silent Mode. If Silent Mode is disabled, the Alarm Pareto control shows error message boxes. If Silent Mode is enabled, the error message boxes do not appear. Error information is written to the logger.
EndTime	Returns or sets the end date and time.
FilterMenu	Enables or disables the context menu where you can edit the filter to change the data received by the Pareto control. This property is only enabled if Filter Menu Files is set.
FilterFavoritesFile	Specifies the filter favorites file, as a string.
Font	Sets the font for the records and the heading in the control.
FontColor	Sets the font color for the view of records in the Alarm Pareto control.
HorizontalChart	Shows the chart as horizontal bars. If HorizontalChart is disabled, the chart shows vertical bars.
MaxRecords	Returns or sets a value that specifies the maximum records to be retrieved at a given time.
NoMatchMessage	Sets the message that appears when there is no data to be processed for the Alarm Pareto control.
QueryTimeZone	Sets the time zone to either UTC Time or Origin Time.
ServerName	Returns the current server name.
ShowCountPercentage	If selected, shows the count for each bar as a percentage of the total count. If not selected, shows the actual count for each bar.
ShowNodeName	Sets the Alarm Pareto control to show the node name in addition to the other information on the bar.
ShowSelectedInStatusBar	Enables or disables to show the information from the selected bar on the status bar.
ShowStatusBar	Returns or sets a value that determines whether the status bar is shown.

Property Name	**Purpose**
ShowTimeinState	Returns or sets a value that determines whether the Alarm Pareto control shows the bars based on the time in which the tag has remained in alarm state. If disabled, the control shows the bars based on the number of times an alarm has occurred.
SpecificTime	Returns or sets a value that determines whether the control uses the "start time" and "end time" properties, or computes the start time and end time based on the value of the Duration property.
StartTime	Returns or sets the start date and time.
User	Returns or sets the User used as the control to connect to the SQL Server.

Using Alarm Pareto ActiveX Methods

Use the Alarm Pareto ActiveX methods to:

- Control the database connection.
- Retrieve records from the database.
- Retrieving information about specific pareto bars.

For more information about calling methods, see Scripting ActiveX Controls in the InTouch® HMI Scripting and Logic Guide.

Controlling Database Connections

Use the Connect() method to connect to the alarm database.

Connect() Method

Connects to the database configured from the **Database** tab of the Alarm Pareto control properties.

Syntax

```
Object.Connect()
```

Example

The name of the control is AlarmPareto1.

```
#AlarmPareto1.Connect();
```

Retrieving Records from the Database

Use the following functions to retrieve records from the database:

- *Refresh() Method* on page 288
- *SelectQuery() Method* on page 288

Refresh() Method

Refreshes the control from the database, and if the connection is successful, shows the set of records in the range from 1 to the number defined by the MaxRecords property.

Syntax

```
Object.Refresh()
```

Example

```
#AlarmPareto1.Refresh();
```

SelectQuery() Method

Selects a filter that is configured as a query favorite file.

Syntax

```
Object.SelectQuery(Filter)
```

Parameter

Filter
The name of the query filter.

Example

The name of the control is AlarmPareto1.

```
#AlarmPareto1.SelectQuery("MyFilter");
```

Retrieving Information About Specific Pareto Bars

Use the following functions to retrieve information about specific pareto bars:

- *GetItemAlarmName() Method* on page 288
- *GetItemAlarmType() Method* on page 289
- *GetItemCount() Method* on page 289
- *GetItemTotalTime() Method* on page 289
- *GetItemEventType() Method* on page 290
- *GetItemProviderName() Method* on page 290

GetItemAlarmName() Method

Gets the name of the alarm for a specific bar.

Syntax

```
Object.GetItemAlarmName(BarIndex)
```

Parameter

BarIndex
The index of the bar.

Example

The name of the control is AlarmPareto1.

```
#AlarmPareto1.GetItemAlarmName(1);
```

GetItemAlarmType() Method

Gets the type of alarm for a specific bar.

Syntax

```
Object.GetItemAlarmType(BarIndex)
```

Parameter

BarIndex
The index of the bar.

Example

The name of the control is AlarmPareto1.

```
#AlarmPareto1.GetItemAlarmType(1);
```

GetItemCount() Method

Gets the number of alarms in a bar.

Syntax

```
Object.GetItemCount(BarIndex)
```

Parameter

BarIndex
The index of the bar.

Example

The name of the control is AlarmPareto1.

```
#AlarmPareto1.GetItemCount(1);
```

GetItemTotalTime() Method

Gets the total time, in seconds, of a tag in an alarm state.

Syntax

```
Object.GetItemTotalTime(BarIndex)
```

Parameter

BarIndex
The index of the bar.

Example

The name of the control is AlarmPareto1.

```
#AlarmPareto1.GetItemTotalTime(1);
```

GetItemEventType() Method

Gets the type of event for a specific bar.

Syntax

```
Object.GetItemEventType(BarIndex)
```

Parameter

BarIndex
The index of the bar.

Example

The name of the control is AlarmPareto1.

```
#AlarmPareto1.GetItemEventType(1);
```

GetItemProviderName() Method

Gets the name of the provider from the generated alarms for a specific bar.

Syntax

```
Object.GetItemProviderName(BarIndex)
```

Parameter

BarIndex
The index of the bar.

Example

The name of the control is AlarmPareto1.

```
#AlarmPareto1.GetItemProviderName(1);
```

Showing Miscellaneous Information

Use the AboutBox() method to show the **About** dialog box.

AboutBox() Method

Shows the **About** dialog box.

Syntax

```
Object.AboutBox()
```

Example

The name of the control is AlarmPareto1.

```
#AlarmPareto1.AboutBox();
```

Error Handling When Using Methods and Properties

The Alarm Pareto control handles run-time error messages based upon the **Silent Mode** option. For more information, see *Configuring the Appearance and Colors of the Alarm Pareto Control* on page 275.

If **Silent Mode** is selected, the Alarm Pareto control does not show run-time error messages. If it is not selected, the alarm display shows error messages. All Alarm Pareto error messages are sent to the Logger.

Using Alarm Pareto ActiveX Events to Trigger Scripts

You can assign QuickScripts to Alarm Pareto control events, such as a mouse click or double-click. When the event occurs, the QuickScript runs.

The Alarm Pareto control supports the following events:

- Click
- DoubleClick
- ShutDown
- StartUp

The Click event has one parameter called ClicknBarIndex, which identifies the index of the bar that is clicked at run time.

The DoubleClick event has one parameter called DoubleClicknBarIndex, which identifies the index of the bar that is double-clicked at run time.

Click and DoubleClick events are zero-based. When Click and/or DoubleClick events are published, the bar count in the display starts with 0.

Note: The Alarm Pareto control ignores the user interface methods when they are called from the StartUp event, because the control is not visible yet. These methods include: AboutBox() and Refresh().

For more information about scripting ActiveX events, see Scripting ActiveX Controls in the InTouch® HMI Scripting and Logic Guide.

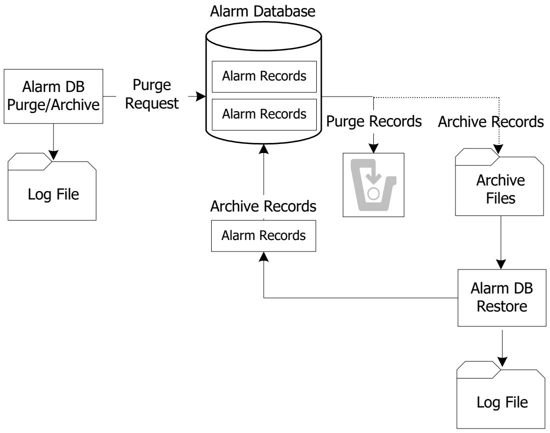
Chapter 12

Maintaining the Alarm Database

About Maintaining the Alarm Database

You manage the alarm database using two InTouch utilities. Use the Alarm DB Purge-Archive utility to remove records from the database permanently or archive them to files. If the database becomes corrupt, use the Alarm DB Restore utility to restore archived records.

The following figure shows how both utilities purge/archive records and then restore them back to the database.



You must be logged on to the computer as an administrator to use the Alarm DB Purge-Archive utility.

Configuring Purge or Archive Settings

Use the Alarm DB Purge-Archive utility to:

- Select the type of records to purge from the alarm database.
- Purge records automatically on a daily, weekly, or monthly schedule.
- Optionally archive purged database records to files.
- Save the status of archive or purge operations to a log file to troubleshoot problems.
- Show the status of purge or archive operations.

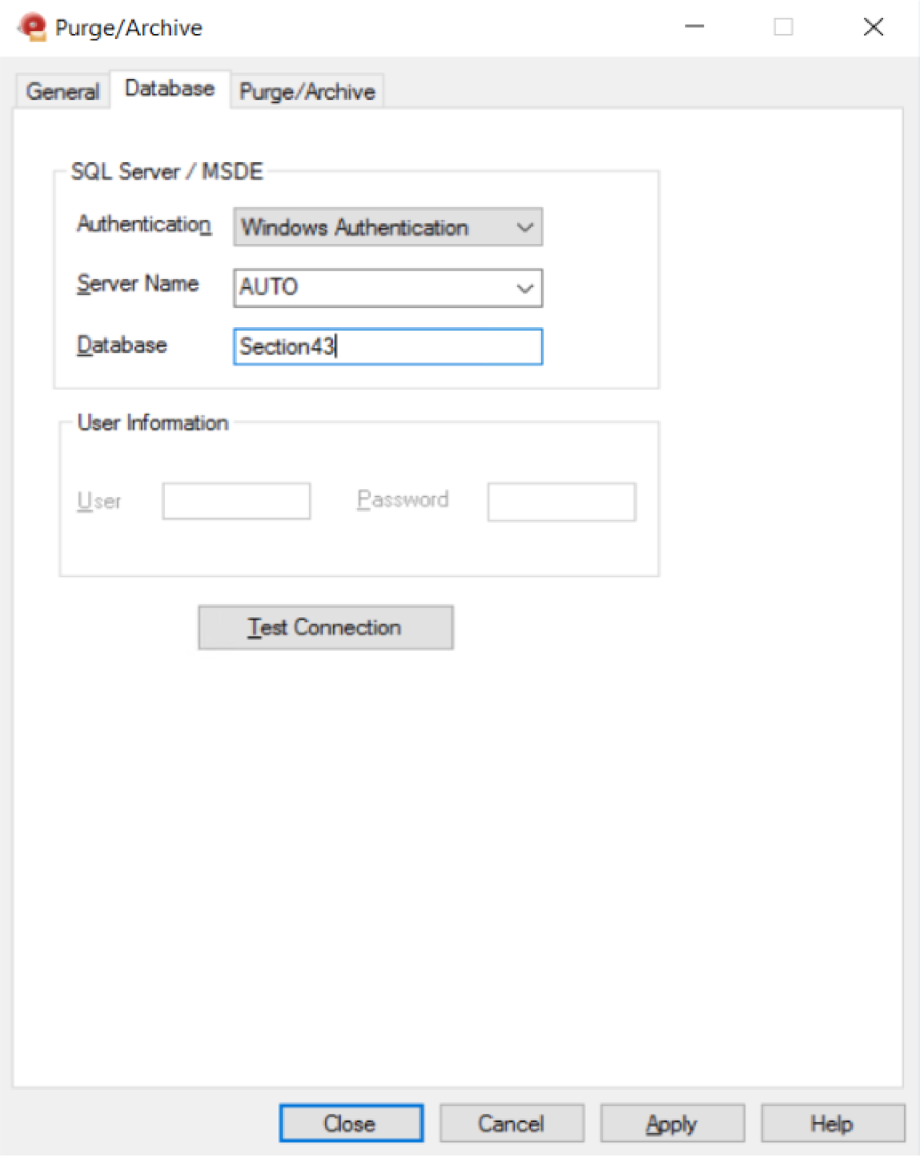
Important: The Alarm DB Purge-Archive utility runs as a set of Windows services. To reduce the security exposure of running the Alarm DB Purge-Archive utility with administrator privileges, the user account permissions are set to non-interactive.

Connecting to the Alarm Database

Before you can use the Alarm DB Purge-Archive utility, you must connect to the alarm database.

To configure the database connection

1. Open the Alarm DB Purge-Archive utility. Do the following:
   a. In the Tools view, expand **Applications**.
   b. Double-click **Alarm DB Purge-Archive**.
2. Click the **Database** tab.



Authentication: Windows Authentication

Server Name: AUTO

Database: Section43

3. Configure the database connection. Do the following:

   a. In the **Authentication** list, select the authentication method: SQL Server Authentication or Windows Authentication (default).

   Note: When you switch from Windows Authentication to SQL Authentication, a pop up dialog will appear with a recommendation to use Windows Authentication for better application security. To proceed with SQL Authentication, click **OK**.

   A similar message is also logged in the SMC Log Viewer.

   b. In the **Server Name** list, click the node name of the server.

   c. In the **Database** box, type the name of the alarm database.

   d. In the **User Information** area, type the user name and password of an alarm database user account.

   Note: The Windows Authentication method uses the credentials of the user currently logged in, and disables the user name and password fields.

4. Click **Test Connection** to test the connection to the database. A message indicates if the connection to the alarm database is successful. Click **OK**.

5. Click **Apply**.

Configuring How Much Data to Purge from the Server

You can:

- Select the type of alarm records to be purged from the alarm database.
- Optionally archive purged records from the alarm database to files.
- Select the folder location to store the purge log file.

You can select the type of table that needs to be purged, either the AlarmDetail or AlarmConsolidated table.

All data from the day previous to the number specified is purged. Valid entries are 0-9999. If you select 0, all records are purged from the alarm database except the current day’s records.

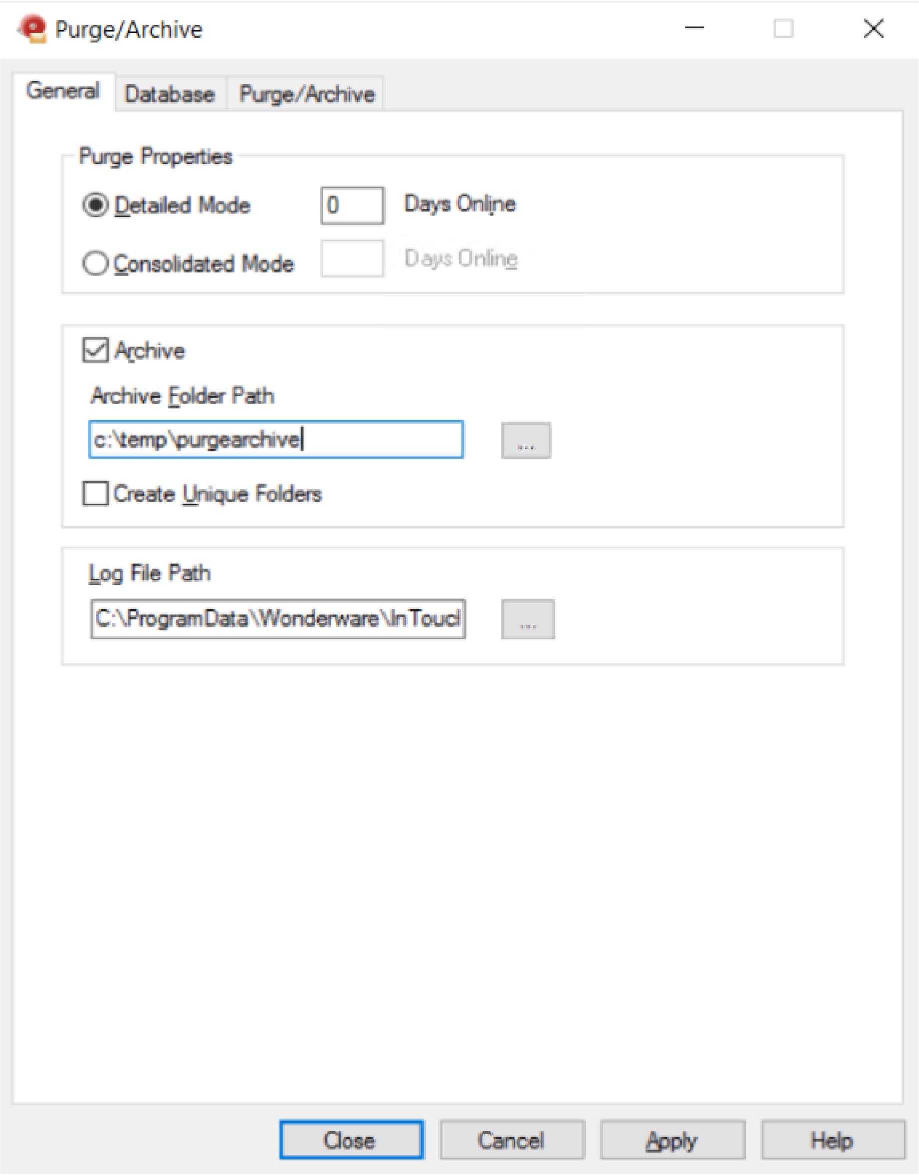
To select records to purge

1. Open the Alarm DB Purge-Archive utility. Do the following:

   a. In the **Tools** view, expand **Applications**.

   b. Double-click **Alarm DB Purge-Archive**.

2. Click the **General** tab.



Purge Properties

● Detailed Mode 0 Days Online

○ Consolidated Mode Days Online

☑ Archive

Archive Folder Path

c:\temp\purgearchive

□ Create Unique Folders

Log File Path

C:\ProgramData\Wonderware\InToucl

3. In the **Purge Properties** area, configure the type of records to purge. Do either of the following:
   - Click **Detailed Mode** to purge alarm records that are saved in the database in Detailed mode.
   - Click **Consolidated Mode** to purge alarm records that are saved in the database in Consolidated mode.
4. In the **Days Online** box, type the number of days worth of records to retain in the alarm database.
5. Click **Apply**.

Configuring the Archive of Purged Data

You archive the records purged from the alarm database and then restore them using the Alarm DB Restore utility.

When you purge the alarm database, the Alarm DB Purge-Archive utility automatically creates a set of nine archive files that correspond to the purged alarm database tables. Each file contains the purged records of a single table.

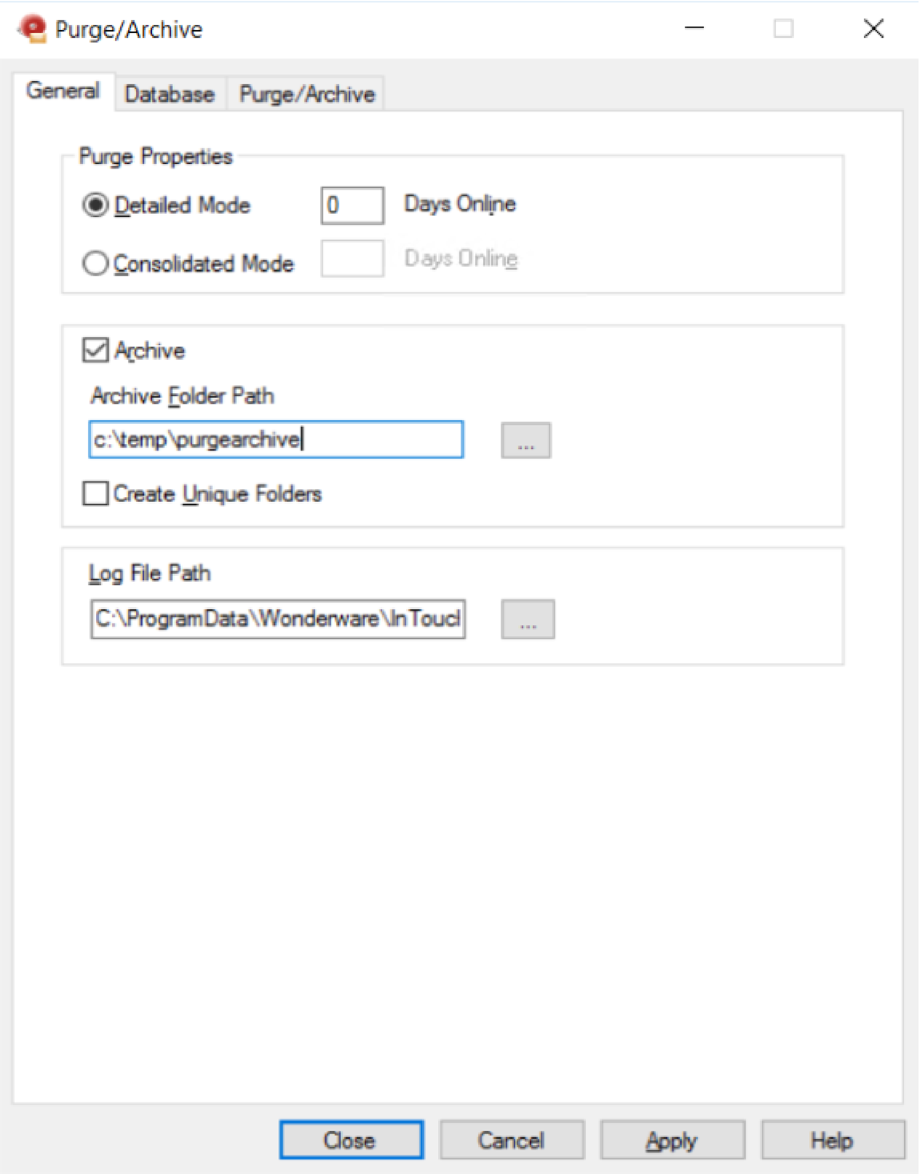
The Alarm DB Purge-Archive utility assigns names to the archive files based upon the table name, date, and time when the purge operation occurred. For example, the name of the archive file for the AlarmMaster table that was purged on June 22, 2007 at 5:30 p.m. is formatted like the following:

AlarmMaster_06222007_1730.txt

To configure the archive

1. Open the Alarm DB Purge-Archive utility. Do the following:
    a. In the **Tools** view, expand **Applications**.
    b. Double-click **Alarm DB Purge-Archive**.

2. Click the **General** tab.



3. Select the **Archive** check box.
4. In the **Archive Folder Path** box, type the folder location where archive files should be saved or click the ellipsis button to browse for the location.
5. Select the **Create Unique Folders** check box if you want the archive files to be placed in an individual sub-folder beneath the archive file folder.
6. Click **Apply**.

Configuring Log File Settings

The Alarm DB Purge-Archive utility generates status messages during a purge operation. You can view these messages online from the utility's **Status** window. The Alarm DB Purge-Archive utility also writes purge messages to the purge log file named WWAlmPurge.log.

The example below shows the messages stored in the log file after a successful purge operation.

```
Purge Started on 12:16:48 PM 6/22/2007
Starting transaction....
Archiving Table ProviderSession...
Archiving Table Query...
Archiving Table Cause...
Archiving Table Alarm Master...
Archiving Table OperatorDetails...
Archiving Table Alarm Detail...
Archiving Table Comment...
Archiving Table Events...
Archiving Table TagStatus...
Purging records in the database...
Committing....
Purge Completed On 12:16:52 PM 6/22/2007
144 records from AlarmMaster were purged along with the related records from other tables.
```

By default, the purge log file is stored in this folder: C:\Documents and Settings\All Users\Application Data\Wonderware\InTouch. For computers running the Microsoft Windows Vista operating system, the default application folder is C:\Users\UserName\Documents\My InTouch Applications.

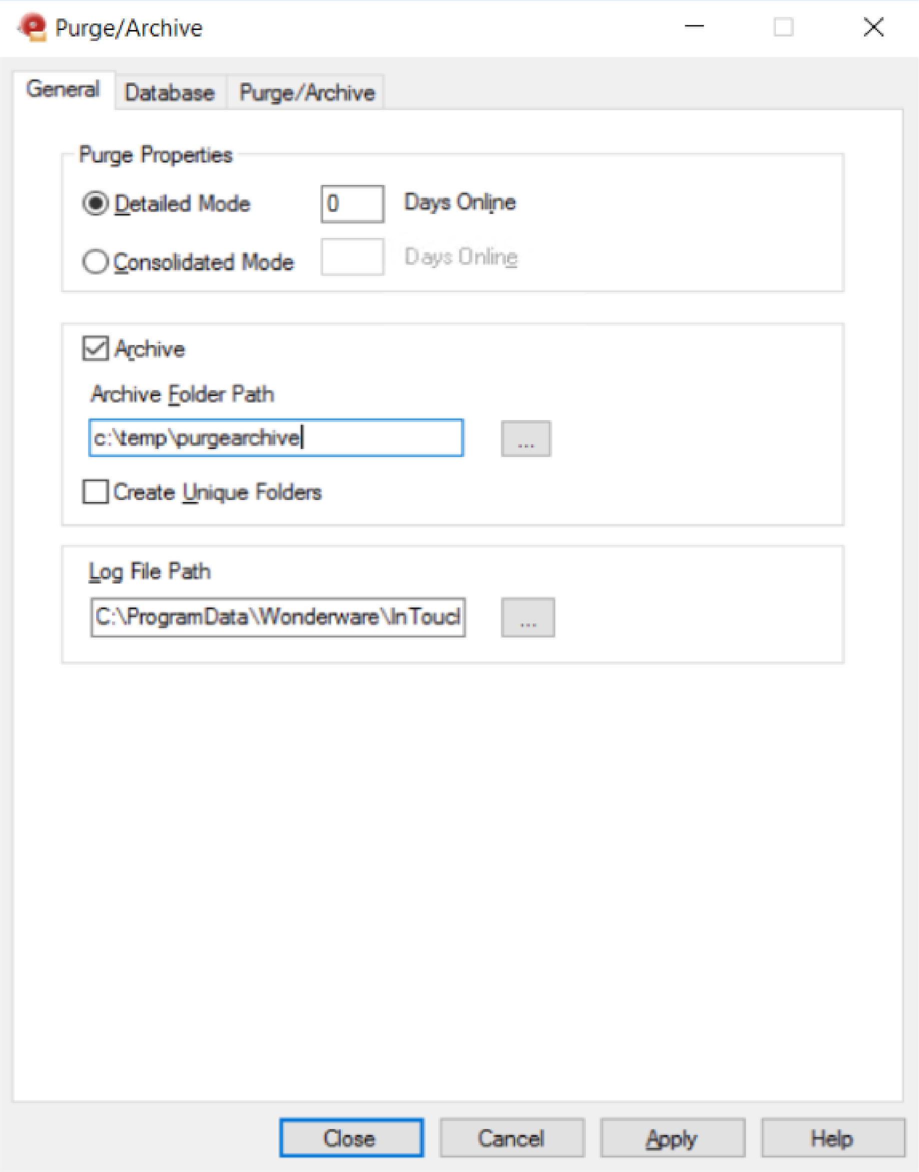
You can change the storage location of the purge log file.

The Alarm DB Purge-Archive utility appends new messages to the log file each time a purge occurs.

To set archive logging

1. Open the Alarm DB Purge-Archive utility. Do the following:
   a. In the **Tools** view, expand **Applications**.
   b. Double-click **Alarm DB Purge-Archive**.

2. Click the **General** tab.



3. In the **Log File Path** box, type the folder location where the purge log file should be placed or click the ellipsis button to browse for the location.

4. Click **Apply**.

Manually Purging and Archiving the Database

You can purge and archive your alarm database manually. This overrides the activation time and starts the purging and archiving immediately.

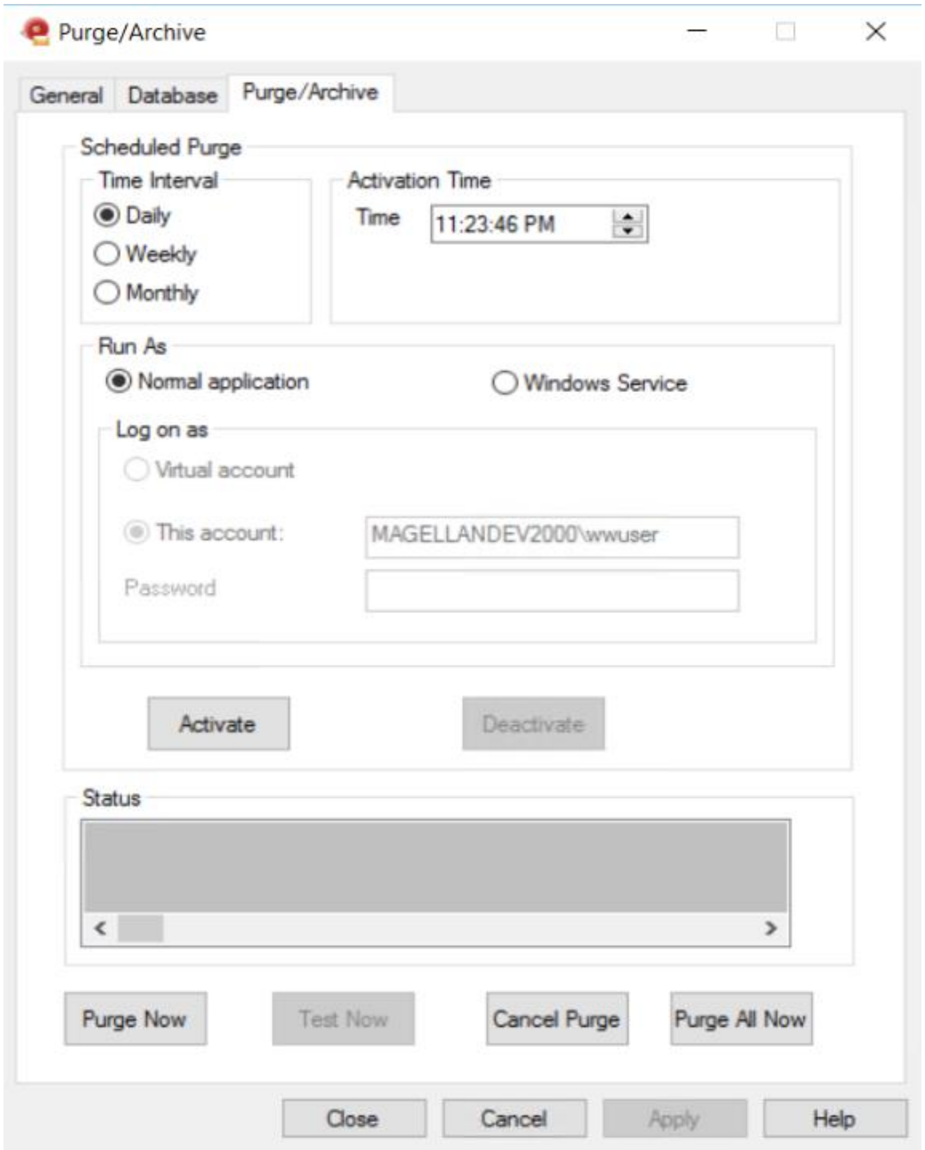
The purge operation checks for the presence of an archive file and appends to the same. If the archive file is not present, the file is created as per the naming convention and then used for archiving.

The purge operation does not delete entries in tables such as ProviderSession, Query, and Cause that are linked to the main tables such as AlarmMaster through foreign key constraints. The related records in these tables are written to the files to maintain the data consistency and also retained in the database.

Caution: Manually purge all records (the Purge All Now option) only when the Alarm DB Logger service is stopped. If the purge operation is committed successfully while the Alarm DB Logger service is running, the Alarm DB Logger service stops logging and starts caching records.

To manually purge and archive records from the alarm database

1. Open the Alarm DB Purge-Archive utility. Do the following:
   a. In the **Tools** view, expand **Applications**.
   b. Double-click **Alarm DB Purge-Archive**.
2. Click the **Purge/Archive** tab.



Scheduled Purge

Time Interval
● Daily
○ Weekly
○ Monthly

Activation Time
Time: 11:23:46 PM

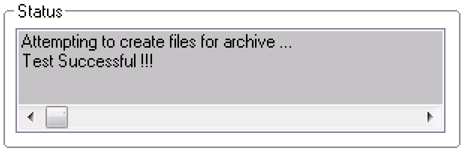
Run As
● Normal application
○ Windows Service

Log on as
○ Virtual account
● This account: MAGELLANDEV2000\wwuser
Password:

Status

3. Click **Test Now** to perform a test purge to verify your connection to the database and archive locations.

The test purge creates empty archive files in the specified archive folder. The **Status** area shows a message that the test was successful.



Attempting to create files for archive ...
Test Successful !!!

The **Test Now** button is available only if you have chosen to archive your purged records. The Archive option is located on the **General** tab.

4. Purge the records from the database. Do either of the following:
   - Click **Purge Now** to purge the selected records.
   - Click **Purge All** Now to purge all records.
5. To stop a purge, click **Cancel Purge**. If you cancel the purge, the alarm database is rolled back to its original state.

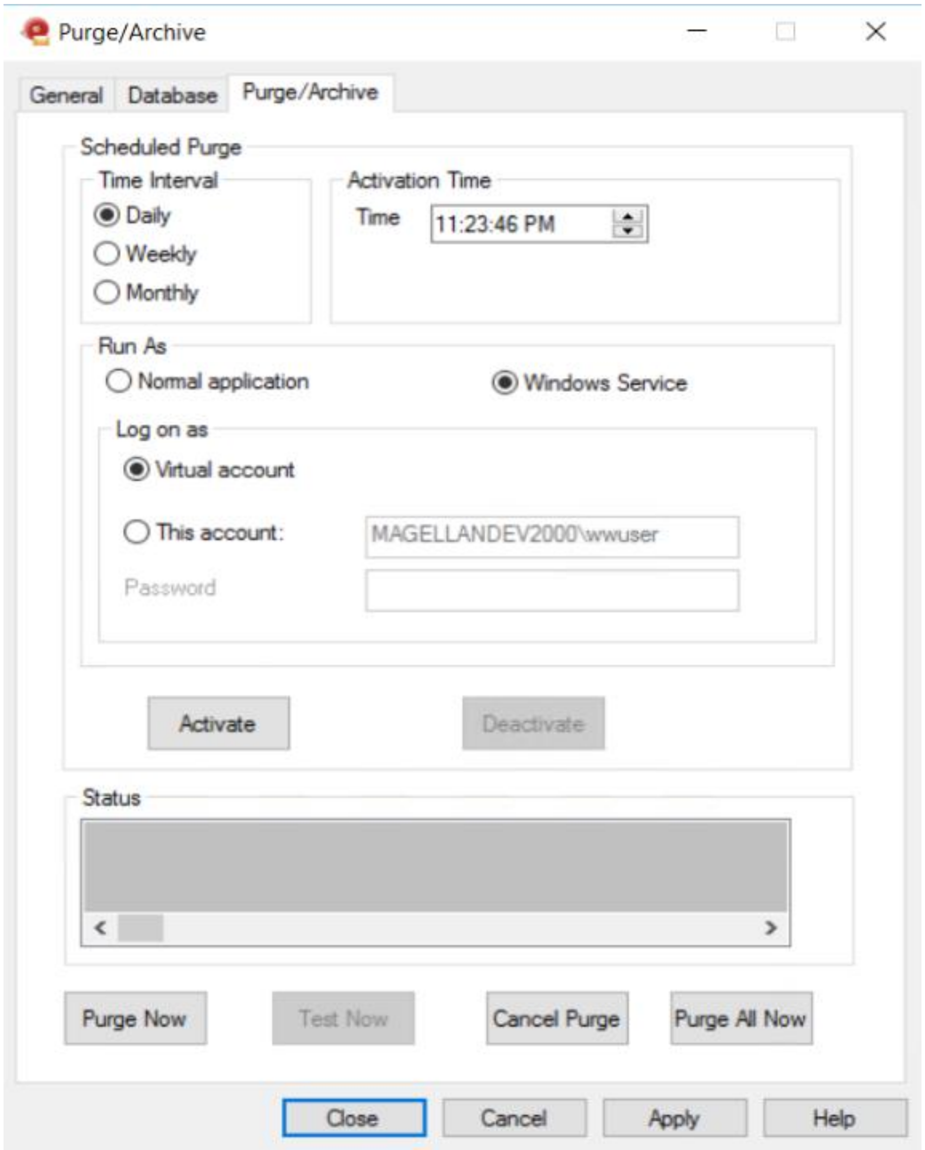
Setting a Schedule for Automatic Purging

The Alarm DB Purge-Archive utility can automatically purge or archive records from the alarm database at scheduled intervals. You can perform a test purge to verify your connection to the database and target locations and to start and stop purging.

To set a schedule for automatic purging

1. Open the Alarm DB Purge-Archive utility. Do the following:
   a. In the **Tools** view, expand **Applications**.
   b. Double-click **Alarm DB Purge-Archive**.

2. Click the **Purge/Archive** tab.



Time Interval
● Daily
○ Weekly
○ Monthly

Time: 11:23:46 PM

Run As
○ Normal application
● Windows Service

Log on as
● Virtual account
○ This account: MAGELLANDEV2000\wwuser
Password:

3. In the Time Interval area, select a purge interval, either daily, weekly, or monthly.

   If you click **Weekly** or **Monthly**, a **Day** box appears in the **Activation Time** area for you to specify the day of the week or day of the month.

   If you click **Daily**, in the **Time** box, configure the time of day that you want the purge/archive operation to start.

4. In the **Run As** area, click **Normal application** to run the purge-archive utility as an application or click **Windows Service** to run it as a service.

   For **Windows Service**, either select **Virtual account** or specify the username and password for another account under the **This account:** area.

   Note: For more information on Virtual account, see *Using Virtual Accounts* on page 212.

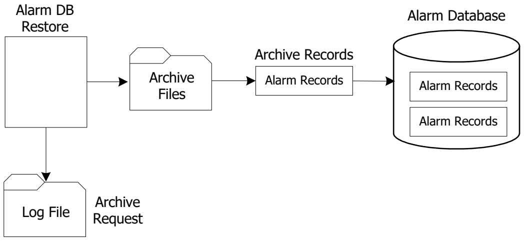
5. Click **Apply** to save your purge and archive settings.

6. Click **Activate** to place the Alarm DB Purge-Archive utility on an automatic purge schedule.
7. Click **Close**.

   To stop the automatic purge schedule and remove the Window Service, click **Deactivate**. After a brief delay the service will be removed from Window Services.

Restoring the Alarm Database

The Alarm DB Restore utility restores the archived alarm records in the archive files back to your alarm database. The following figure summarizes the steps to restore alarm records to the database.



To restore a database, you must:

- Configure the connection to the alarm database.
- Select which records to restore to the alarm database.
- Restore archived records to the alarm database.

When minimized, the Alarm DB Restore utility appears as an icon in the system tray. When you right-click the icon, a menu shows the following commands:

Command	Description
Restore	Begins the restoring process.
Cancel Restore	Cancels the restoring process.
Clear Status	Clears the status window.
Hide Window	Minimizes the Alarm DB Restore utility to an icon in the system tray.
Show Window	Opens and maximizes the Alarm DB Restore utility.
Exit	Closes the Alarm DB Restore utility.

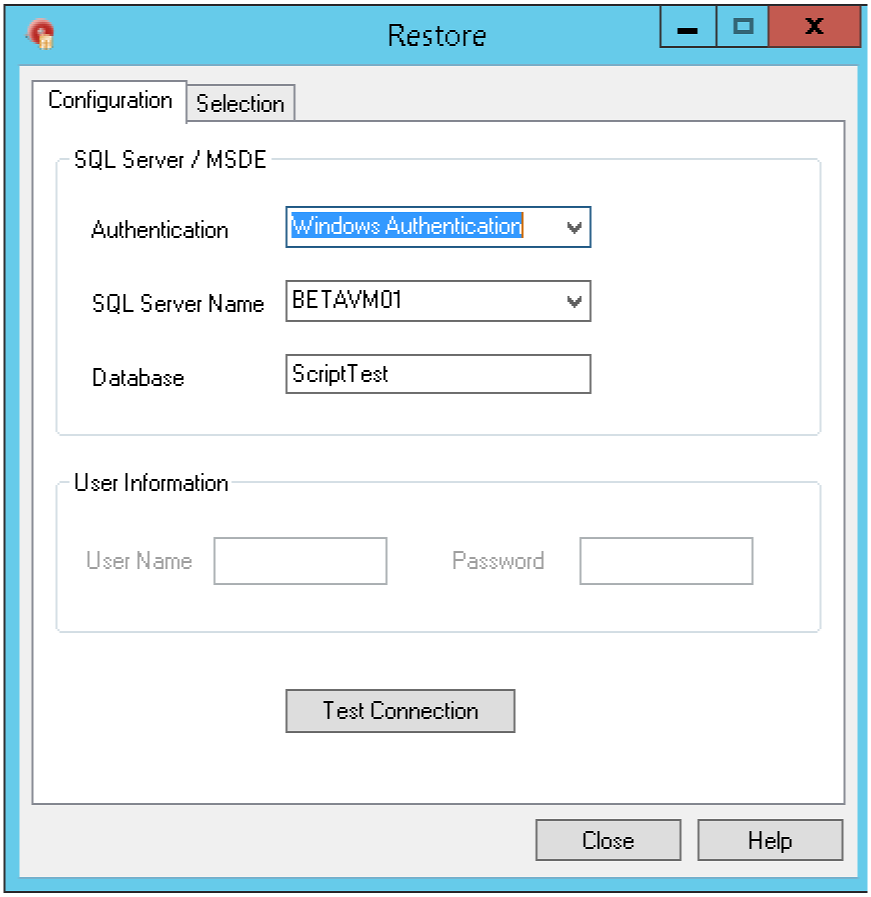
If you right-click in the Alarm DB Restore utility, the same menu appears.

Configuring the Database Connection

You must select a database to restore the archived data to. If the specified database is not present on the server, you are prompted to create a new database with default server parameters.

To configure a database for restoring

1. Open the Alarm DB Restore utility. Do the following:
   a. In the **Tools** view, expand **Applications**.
   b. Double-click **Alarm DB Restore**.
2. Click the **Configuration** tab.



Authentication: Windows Authentication
SQL Server Name: BETAVM01
Database: ScriptTest

3. Configure the connection to the alarm database. Do the following:
   a. In the **Authentication** list, select the authentication method: SQL Server Authentication or Windows Authentication (default).

Note: When you switch from Windows Authentication to SQL Authentication, a pop up dialog will appear with a recommendation to use Windows Authentication for better application security. To proceed with SQL Authentication, click **OK**.

A similar message is also logged in the SMC Log Viewer.

   b. In the **SQL Server Name** list, click the node name of the server that hosts the alarm database.
   c. In the **Database** box, type the name of the alarm database.
   d. In the **User Information** area, type an alarm database user name and password in the respective boxes.
   e. Click **Test Connection** to test your connection to the database. A message indicates whether the connection to the alarm database is successful or not. Click **OK**.

Note: The Windows Authentication method uses the credentials of the user currently logged in, and disables the user name and password fields.

4. Click **Close**.

Configuring Which Files to Restore

You can select a time period for the records to restore and whether you want the database tables to be recreated.

If you cancel the restore, the database is rolled back to its original state.

Caution: If you try to restore archived alarms that are already present in the database, the archived records are not restored. This avoids duplicate alarm/event entries in the database. The Alarm GUID or Event GUID associated with records determines whether an alarm or event is already present in the database.

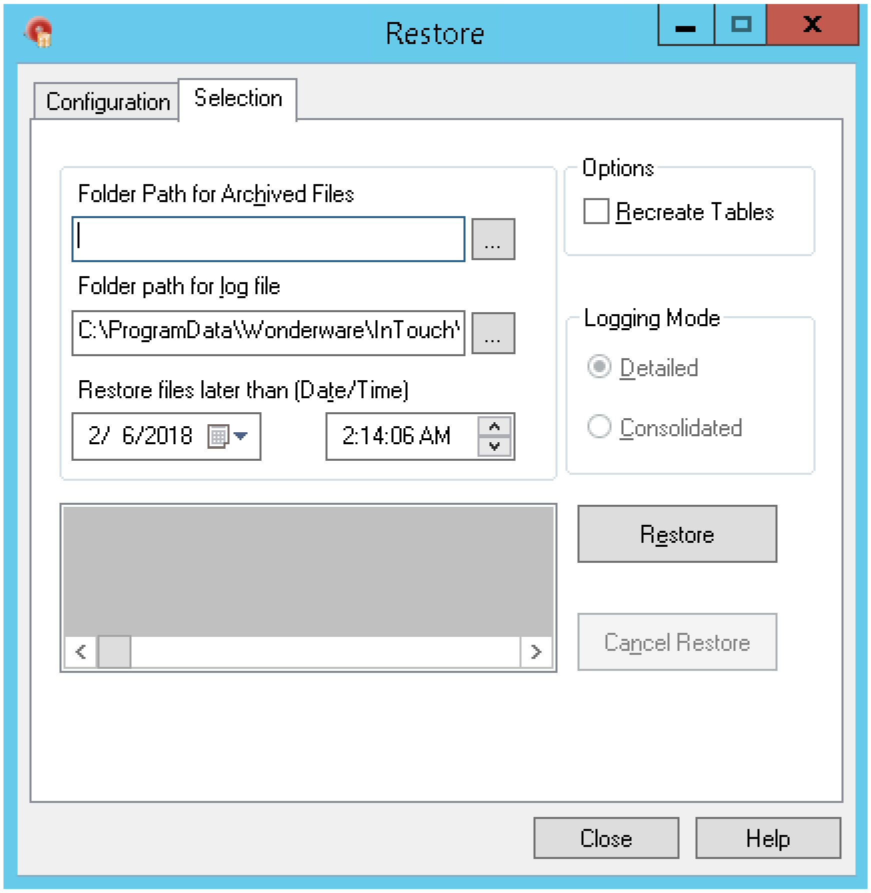
To select database records to restore

1. Open the Alarm DB Restore utility. Do the following:

   a. In the **Tools** view, expand **Applications**.

   b. Double-click **Alarm DB Restore**.

2. Click the **Selection** tab.



Folder Path for Archived Files:

Folder path for log file: C:\ProgramData\Wonderware\InTouch\

Restore files later than (Date/Time): 2/ 6/2018 2:14:06 AM

Options: □ Recreate Tables

Logging Mode: ● Detailed ○ Consolidated

3. In the **Folder Path for Archived Files** box, type the full path (up to 255 alphanumeric characters) to the location of the archived files or click the button to locate and select the folder where archived files are stored.
4. In the Restore files later than (Date/Time) area, select the date and time to start restoring records to the database.

   The starting date and time are set by default to the current date and time.
5. In the Folder path for log file box, type the full path (up to 255 alphanumeric characters) where the log files are created and stored or click the button to locate and select a folder.
6. If you select the Recreate Tables check box, the tables of the specified alarm database are recreated. Depending on the type of logging you selected for the alarm records contained in the archived files, select:
   - **Detailed** - Recreate the alarm database tables in detailed mode.
   - **Consolidated** - Recreate the alarm database tables in consolidated mode.

Important: Recreating tables overwrites all records currently stored in the alarm database.

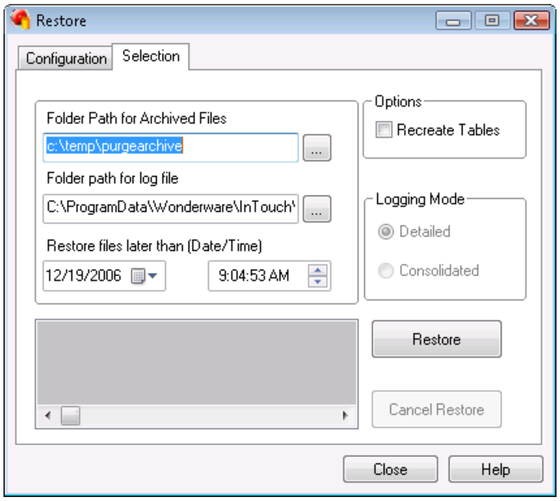
7. Click **Restore**.

Starting a Database Restore Operation

You restore archived database records after you have established the database connection, specified the archived files folder and a time filter.

To restore database records from an archive

1. Open the Alarm DB Restore utility. Do the following:
   a. In the **Tools** view, expand **Applications**.
   b. Double-click **Alarm DB Restore**.
2. Click the **Selection** tab.



Folder Path for Archived Files: c:\temp\purgearchive

Folder path for log file: C:\ProgramData\Wonderware\InTouch\

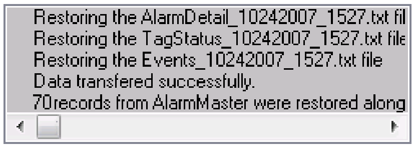
Restore files later than (Date/Time): 12/19/2006 9:04:53 AM

□ Recreate Tables

● Detailed

○ Consolidated

3. Click **Restore**. A message shows whether the restoration is successful and the number of records restored to the database.



```
Restoring the AlarmDetail_10242007_1527.txt fil
Restoring the TagStatus_10242007_1527.txt file
Restoring the Events_10242007_1527.txt file
Data transfered successfully.
70records from AlarmMaster were restored along
```

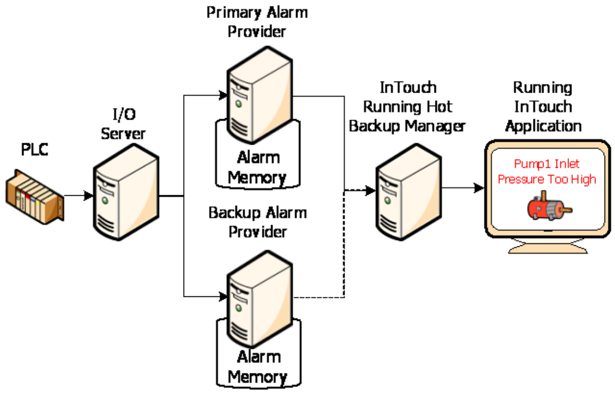
Chapter 13

Enhancing Plant Security Through Alarm Redundancy

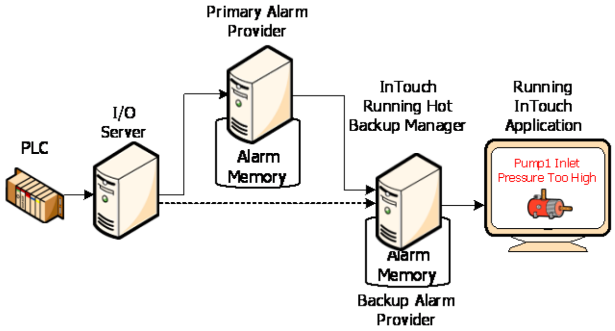
About Enhancing Plant Security Through Alarm Redundancy

The InTouch Distributed Alarm system issues notifications and receives alarm acknowledgments from applications running on remote nodes within a network. Alarm provider applications store alarm data within their memory. Alarm consumer applications run as clients on other nodes to remotely query, show, and acknowledge alarms from the alarm providers.

You use the Alarm Hot Backup Manager to create a duplicate alarm provider. The following figure shows how the Hot Backup Manager uses a secondary current alarm repository as a backup provider.


Primary Alarm Provider
I/O Server
PLC
Alarm Memory
InTouch Running Hot Backup Manager
Running InTouch Application
Pump1 Inlet Pressure Too High
Backup Alarm Provider
Alarm Memory

You can also run the Hot Backup Manager and the backup provider on the same node, as shown in the following figure:


Primary Alarm Provider
I/O Server
PLC
Alarm Memory
InTouch Running Hot Backup Manager
Running InTouch Application
Pump1 Inlet Pressure Too High
Alarm Memory
Backup Alarm Provider

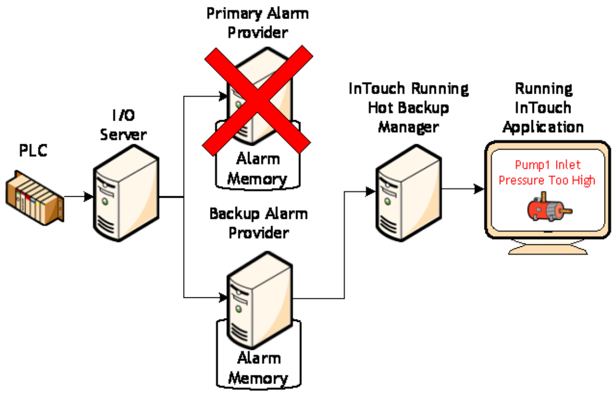
Understanding Hot Backups

The hot backup provides a single name (hot backup pair name) that points to two alarm providers, the primary and the backup (the hot backup pair). The InTouch HMI alarm consumers can reference this single hot backup pair name and retrieve alarms from either the primary or the backup alarm provider. The following alarm clients support querying the hot backup pair:

- InTouch HMI Alarm DB Logger Manager
- InTouch HMI Alarm Printer
- InTouch HMI Alarm Viewer Control
- ArchestrA Alarm Control

If both provider nodes are operating normally, the alarm consumer receives alarm data from the primary provider. If the primary provider fails, however, the alarm consumer receives alarm data from the backup instead.

The following figure shows how the alarm consumer still receives alarms after the primary alarm provider fails. The alarm consumer still references the hot back pair, but the backup provider provides the alarm data.


Primary Alarm Provider
PLC
I/O Server
Alarm Memory
InTouch Running Hot Backup Manager
Running InTouch Application
Pump1 Inlet Pressure Too High
Backup Alarm Provider
Alarm Memory

Specifying the Alarm Providers for Hot Backup

You can specify any of the following alarm providers:

- InTouch

  When you specify InTouch as the alarm provider, the provider must be InTouch for both the primary node and the backup node. However, the alarm group of the backup node can be different from that of the primary node.

- Galaxy

  To specify a Galaxy or Galaxy_<GalaxyName> alarm provider, you must configure AppEngine redundancy in the IDE.

- Galaxy_<GalaxyName>

  The valid characters for GalaxyName are alphanumeric and special characters $, #, and _.

  When specifying Galaxy_<GalaxyName>, the Galaxy name must be the same for both the primary and the backup node.

When you specify Galaxy or Galaxy_<GalaxyName> as the alarm provider, the provider of the backup node can be Galaxy or Galaxy_<GalaxyName>.

The alarm group of the backup node must be the same as that of primary node.

Note: The system does not support hot backup pairs for alarms generated from two different Galaxies.

About the Hot Backup Manager

The Hot Backup Manager synchronizes alarm acknowledgements between the primary and backup providers. If an alarm is acknowledged on the primary provider, the same alarm is acknowledged simultaneously on the backup provider.

The Hot Backup Manager:

- Provides a configuration utility to create a backup pair.
- Provides a configuration utility to map alarm records between the primary and backup providers of a hot backup pair.
- Synchronizes alarm acknowledgments between InTouch alarm provider backup pairs.
- Establishes communication between all nodes that belong to a Hot Backup system when the Distributed Alarm system starts and stops.

Using the Alarm Hot Backup Manager in TSE Sessions

You can start only one Alarm Hot Backup Manager using **Tools, Applications** in a different Terminal Services Edition (TSE) session of WindowMaker.

You can start one Alarm Hot Backup Manager in each TSE session using the **Start, Programs** shortcut. The last saved configurations will overwrite earlier configurations.

Querying the alarm hot backup pair is supported in a TSE session at run time.

Configuring a Hot Backup Pair

The Alarm Hot Backup Manager creates a backup pair from two host nodes running provider applications. You can start the Hot Backup Manager from WindowMaker. To configure a hot backup pair:

- Create a hot backup pair.
- Set key fields for alarm records.
- Map alarm record key fields.
- Import the alarm record map to Hot Backup Manager.

Creating a Hot Backup Pair

To create a hot backup pair, you:

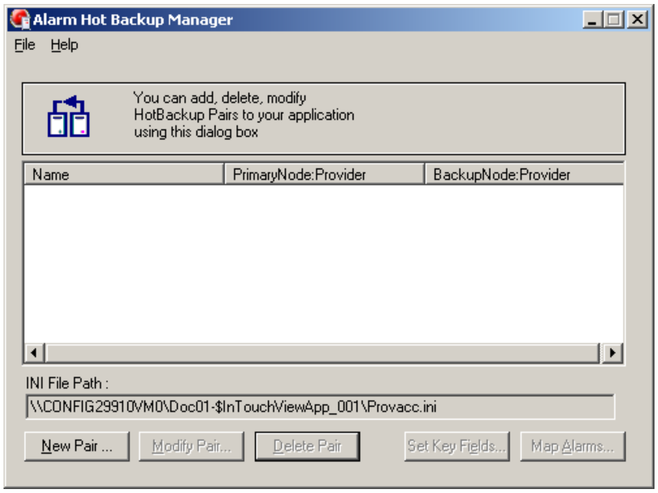
- Assign a name to the hot backup pair.

- Identify the primary alarm provider.
- Identify the backup alarm provider.

You can also specify a Provacc.ini file that contains the configuration information.

To configure a hot backup pair

1. Open the Alarm Hot Backup Manager. Do the following:
   a. In the **Tools** view, expand **Applications**.
   b. Double-click **Alarm Hot Backup Manager**.



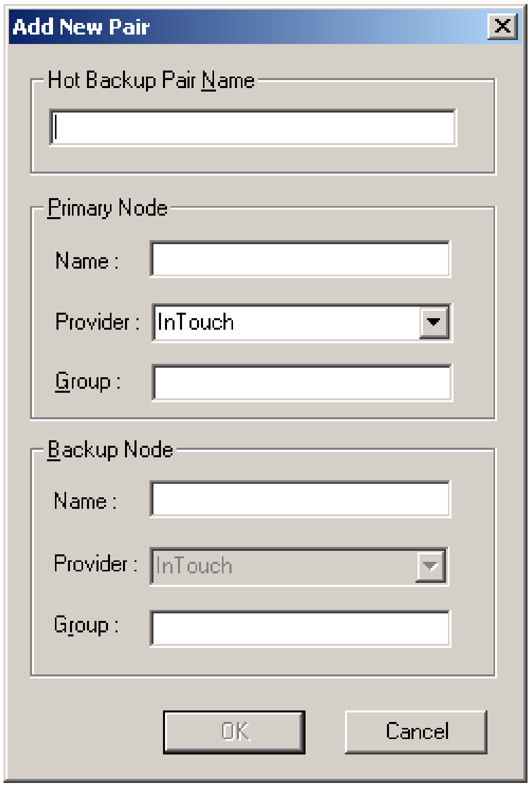
You can add, delete, modify HotBackup Pairs to your application using this dialog box

INI File Path : \\CONFIG29910VM0\Doc01-$InTouchViewApp_001\Provacc.ini

2. On the **File** menu, click **Open**. Select the Provacc.ini file and then click **OK**.

   By default, the Alarm Hot Backup Manager checks for the Provacc.ini file in the last opened InTouch application folder. You should use the Provacc.ini file located in the InTouch application's folder. Otherwise, you can create a copy of the Provacc.ini file in another specified folder location and then select it for use with Hot Backup Manager.

3. Click **New Pair**. The **Add New Pair** dialog box appears.



4. In the **Hot Backup Pair Name** box, type a unique name for the new backup pair.

   A pair name can be 32 alphanumeric characters or less. You can use the dollar sign ($), pound sign (#), and underscore (_) character in a pair name.

5. In the **Primary Node** area, configure the primary node. Do the following:

   a. In the **Name** box, type the node name of the computer running the primary provider application. The node name must be unique to Hot Backup Manager. An error message appears if you enter a non-existent node name or the node name is used in another hot backup pair.

   b. In the **Provider** box, select the alarm provider from the drop-down list. The default is InTouch.

   c. In the **Group** box, type the name of the alarm group that queries alarms from the primary provider.

6. In the **Backup Node** area, configure the backup node. Do the following:

   a. In the **Name** box, type the node name of the computer running the backup provider application. This can be the same node that is running the Hot Backup Manager.

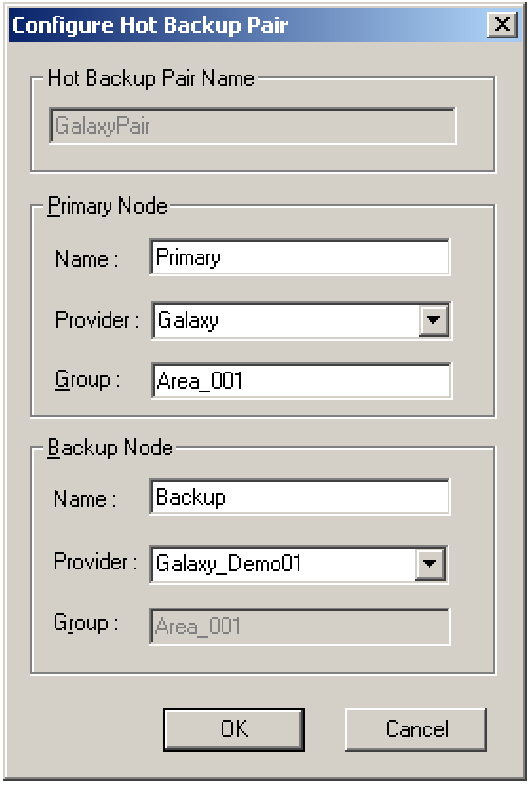
   b. In the **Provider** box, select the backup provider, if you specified a Galaxy or Galaxy_<GalaxyName> alarm provider.

      If you specified Galaxy or Galaxy_<GalaxyName> as the primary node alarm provider, the backup node provider must be Galaxy or Galaxy_<GalaxyName>.

      If you specified InTouch as the primary node alarm provider, the backup node provider must be InTouch.

c. In the **Group** box, type the name of the alarm group that queries alarms from the backup provider.

If you specified Galaxy or Galaxy_<GalaxyName> alarm providers, the backup node group must be the same as the primary node group, and cannot be edited.



Hot Backup Pair Name: GalaxyPair

Primary Node
Name : Primary
Provider : Galaxy
Group : Area_001

Backup Node
Name : Backup
Provider : Galaxy_Demo01
Group : Area_001

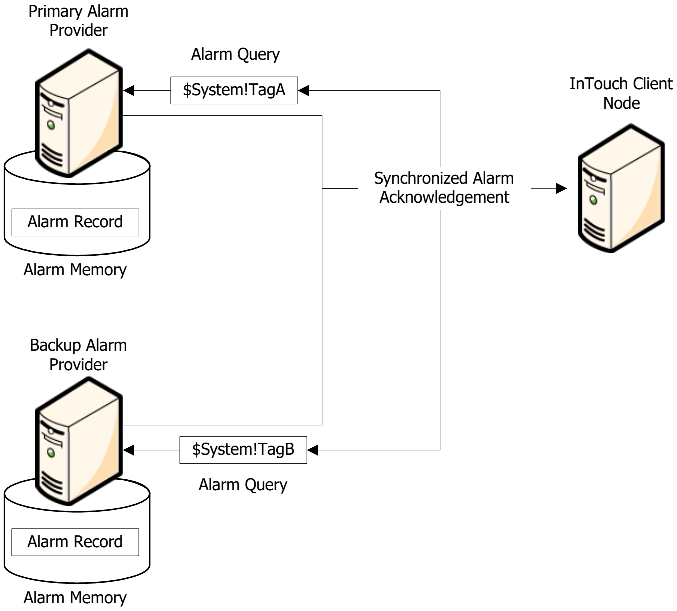
7. Click **OK**.
8. On the **File** menu, click **Save**.
9. Restart WindowMaker.

Setting Alarm Key Fields for a Hot Backup Pair

To synchronize alarm acknowledgements between the primary and backup providers, you must identify a combination of tag alarm record fields. This combination of fields generates a unique mapping key to the paired alarm records stored in each provider’s current alarm repository.

You can set alarm key fields and map alarms only for InTouch alarm providers.

The figure below shows a synchronized alarm acknowledgement request based on alarm record fields in a standard query.



A mapping key can be a combination of design-time and run-time alarm records. Design-time alarm records are based upon alarm properties of a tag when it is defined from the Tagname Dictionary.

For example, an alarm name field is known at design time because it takes on the name of the tag defined in the primary and backup node applications. QuickScripts or operators actions define or modify alarm properties stored as records while an application is running.

You can create a map key from any combination of design-time or run-time alarm record fields. The map key must select only a single record from each provider’s current alarm repository. The key field must create a unique query.

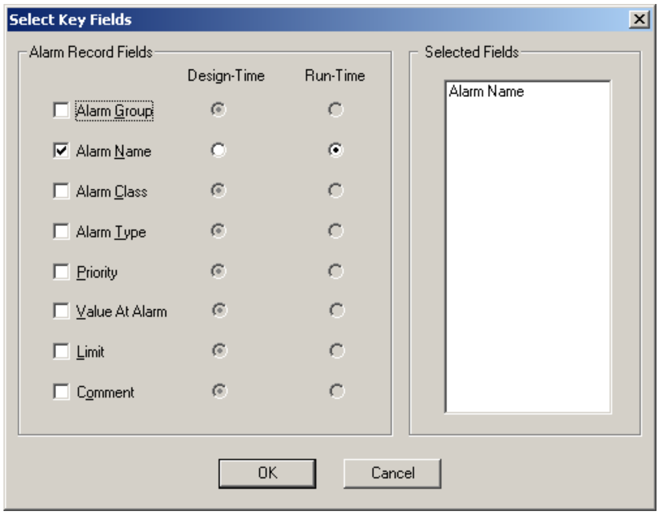
You use the Hot Backup Manager to create a mapping key list from alarm record fields.

Note: When you specify a Galaxy or Galaxy_<GalaxyName> alarm provider, both the **Set KeyFields** and the **Map Alarms** options are disabled.

To create an alarm field mapping list for a hot backup pair

1. Open the Alarm Hot Backup Manager. Do the following:
    a. In the **Tools** view, expand **Applications**.
    b. Double-click **Alarm Hot Backup Manager**.
2. Select a hot backup pair from the list.

3. Click **Set Key Fields**. The **Select Key Fields** dialog box appears.



Select Key Fields

Alarm Record Fields

	Design-Time	Run-Time
☐ Alarm Group	●	○
☑ Alarm Name	○	●
☐ Alarm Class	●	○
☐ Alarm Type	●	○
☐ Priority	●	○
☐ Value At Alarm	●	○
☐ Limit	●	○
☐ Comment	●	○

Selected Fields

Alarm Name

4. In the **Alarm Record Fields** area, select the alarm record fields that you want to include in the mapping key list.

   The selected alarm record fields appear in the **Selected Fields** list box.

5. Select **Design-Time** or **Run-Time** for the alarm record fields you selected.
6. Click **OK**.
7. Restart WindowMaker.

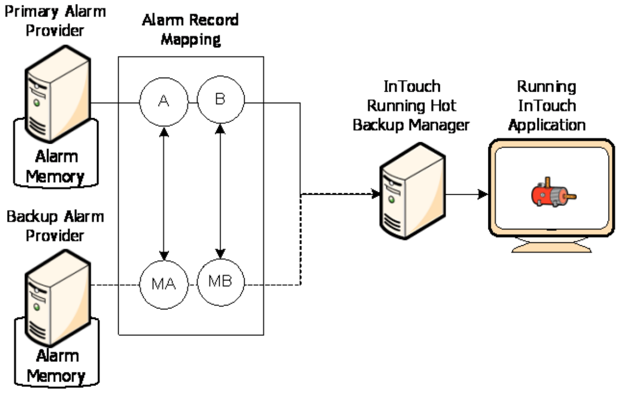
Creating an Alarm Record Mapping File

You must map the alarm records of a hot backup pair whenever the primary and backup alarm providers are running different applications. Alarm record mapping establishes a correspondence between dissimilar alarm records of the primary and backup providers. For example, you can map alarm records based upon their assigned InTouch tag names. Although their names may be different, the alarm records are logically consistent between the two provider alarm repositories.

Note: Creating an alarm record mapping file is unnecessary if both the primary and backup providers are running the same application. If no mapping file is provided, the Distributed Alarm system assumes the primary and the backup providers are running the same applications with the same alarm records.

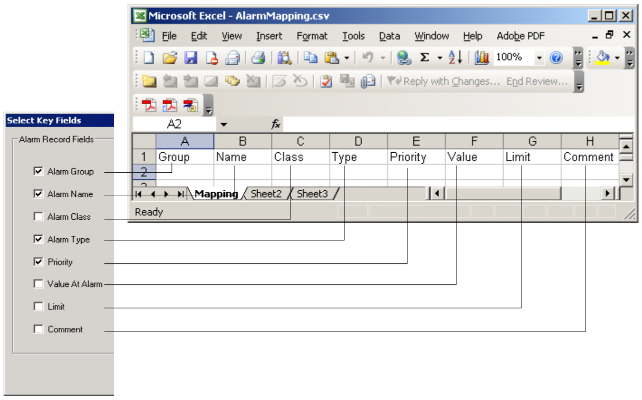
Mapping enables alarm acknowledgements to be synchronized between providers running different applications. When the Distributed Alarm system acknowledges an alarm on a provider, it also knows which alarm to acknowledge on the other provider.

The following figure shows alarm record mapping between the two providers of a hot backup pair. In this example, the A and B alarm records of the primary provider are mapped to the corresponding alarm records of the backup provider, MA and MB.



The Hot Backup Manager imports the alarm record map from a comma separated values (CSV) file that you create with Microsoft Excel or a text editor like Notepad. The mapping file includes an ordered list of alarm record fields that associate the corresponding alarm records of the primary and backup providers.

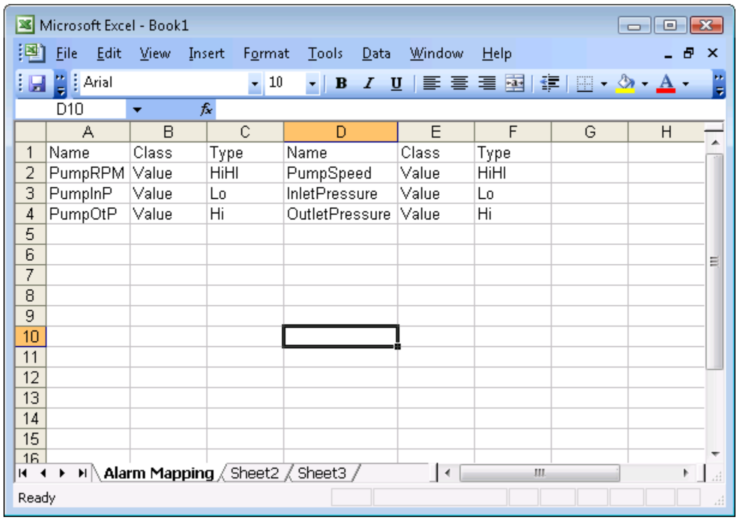
You must specify tag alarm record fields as the headers of the mapping file. The order of the headers within the file must match the alarm record fields shown from the **Select Key Fields** dialog box. The figure below shows the column headers of an Excel file that match the order of alarm record fields of the **Select Key Fields** dialog box.


Microsoft Excel - AlarmMapping.csv
File Edit View Insert Format Tools Data Window Help Adobe PDF
100%
Reply with Changes... End Review...
A2
Mapping
Sheet2
Sheet3
Ready
Select Key Fields
Alarm Record Fields

	A	B	C	D	E	F	G	H
1	Group	Name	Class	Type	Priority	Value	Limit	Comment
2								

☑ Alarm Group
☑ Alarm Name
□ Alarm Class
☑ Alarm Type
☑ Priority
□ Value At Alarm
□ Limit
□ Comment

You can create a mapping file that only includes the selected headers of alarm field records used to generate mapping keys. The figure below shows an Excel file that includes only the Name, Class, and Type headers. When you add headers, their order must always match the order of alarm record fields of the **Select Key Fields** dialog box.



	A	B	C	D	E	F	G	H
1	Name	Class	Type	Name	Class	Type		
2	PumpRPM	Value	HiHI	PumpSpeed	Value	HiHI		
3	PumpInP	Value	Lo	InletPressure	Value	Lo		
4	PumpOtP	Value	Hi	OutletPressure	Value	Hi		

Specify the alarm field records of the primary provider in the left set of columns. Likewise, specify the same records of the backup provider in the right set of columns.

Mapping File Column Header	Values Assigned to Alarm Field Records
Group	Name of the alarm group in which the tag has been assigned. An alarm group name cannot contain a blank space.
Name	Name of the tag whose alarm records are mapped. A tag name cannot contain a blank space.
Class	Class of alarm assigned to the tag. Possible Class values are: • VALUE for a value alarm. • DEV for a deviation alarm. • ROC for a rate of change alarm. • DSC for a discrete alarm.
Type	Type of alarm condition associated with an alarm class. • LOLO, LO, HI, and HIHI for a value alarm • MinDev and MajDev for a deviation alarm • ROC for a rate of change alarm • DSC for a discrete alarm

Mapping File Column Header	Values Assigned to Alarm Field Records
Priority	Priority assigned to an alarm condition. Priority must be a number from 1 to 999.
Value	See the following notes.
Limit	See the following notes.
Comment	See the following notes.

Value, Limit, and Comment columns:

- The "Value" and "Limit" column values can be anything other than Null, when the "Class" or "Type" values for that particular record in that particular node are not known.
- The "Value" and "Limit" column values can accept only 1234567890.-+eE characters when the Class value for that particular record in that particular node is known as Value, Dev or ROC.
- The "Value" and "Limit" column values can accept only 1234567890.-+eE characters when the Type value for that particular record in that particular node is known as LOLO, LO, HI, HIHI, MinDev, MajDev or ROC.
- The "Value" and "Limit" column values can be anything other than Null, when any one of the "Class" or "Type" values for that particular record in that particular node is known as DSC.
- The Comment column values have no limitations.
- All records of the mapping file should be unique. The Hot Backup Manager skips any duplicate records during the import process. You can see details after the import process is completed.

You can combine the field values of alarm records - such as Group, name, and Priority - to generate a "composite mapping key" that uniquely identifies alarm records.

An InTouch Alarm Provider equates the "Name" field to the name of the tag that generated the alarm. Therefore, when given hot backup pair, a mapping key can be generated using the combination of the alarm group name and the tag name.

For example:

Provider Node	Backup Node
$System!TagA	$System!TagB

If a provider has a name field and comment field together as a unique field then the mapping key can be a combination of name and comment.

Provider Node	Backup Node
tagA!CommentA	tagB!CommentB

This could be true for any other field combination for a third provider.

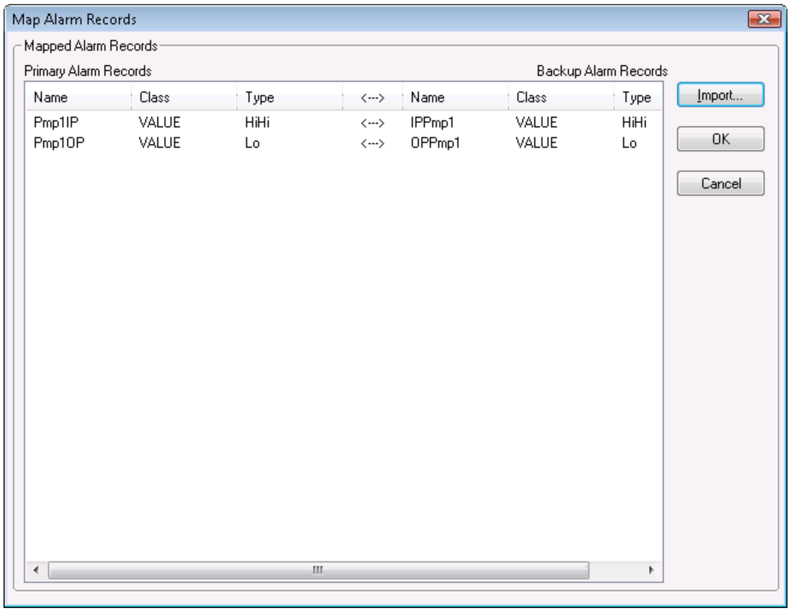
Importing an Alarm Record Mapping File

You can import the contents of the alarm record mapping file to the Hot Backup Manager.

No cross-validation between the Alarm Class and Alarm Type fields is done when you import the mapping file.

To import alarm records from a mapping file

1. Open the Alarm Hot Backup Manager. Do the following:
   a. In the **Tools** view, expand **Applications**.
   b. Double-click **Alarm Hot Backup Manager**.
2. Select the hot backup pair from the list.
3. Click **Map Alarms**. The **Map Alarm Records** dialog box appears.



Name	Class	Type	<--->	Name	Class	Type
Pmp1IP	VALUE	HiHi	<--->	IPPmp1	VALUE	HiHi
Pmp1OP	VALUE	Lo	<--->	OPPmp1	VALUE	Lo

4. Click **Import**. The **Open** dialog box appears. Select the mapping file and click **Open**.

   The Hot Backup Manager begins importing records from the file.
5. Click **OK** after all mapping records have been imported.
6. On the **File** menu, click **Save**.
7. Restart WindowMaker.

Troubleshooting Alarm Mapping File Import Problems

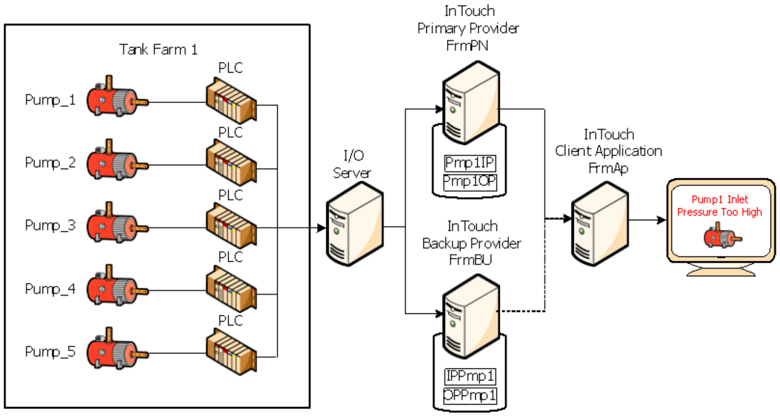
The following situations prevent a file from importing:

- The required number of columns should be filled with values for all the records at the import file. There should never be fewer values or more values for any record.
- The headings at the import file should be the same as that of the headings at the **Select Key Fields** dialog box and should be in the same order.

If a record that is imported has a wrong entry, you are prompted to skip that particular record number or to abort the importing process itself.

Example of a Hot Backup Pair

This section describes a typical working scenario to set up an alarm backup pair. The figure below shows the configuration of a hot backup pair for an InTouch tank farm application. In this example, the InTouch application monitors pump pressure as an alarm condition.


Tank Farm 1
Pump_1
Pump_2
Pump_3
Pump_4
Pump_5
PLC
PLC
PLC
PLC
PLC
I/O Server
InTouch Primary Provider FrmPN
Pmp1IP
Pmp1OP
InTouch Backup Provider FrmBU
IPPmp1
OPPmp1
InTouch Client Application FrmAp
Pump1 Inlet Pressure Too High

All three computers are running the InTouch HMI. The hot backup pair includes FrmPN as the primary provider and FrmBU as the backup. These two nodes serve as alarm providers within an InTouch Distributed Alarm system.

The Hot Backup Manager run on the FrmAp node. The InTouch client application runs on FrmAp and consumes alarms from the two providers of the hot backup pair.

The InTouch application running on FrmPN generates two summary alarms for pump inlet and outlet pressure. The two alarms belong to the TnkFrm1 alarm group. The InTouch application running on FrmBU generates two logically equivalent alarms for pump pressure.

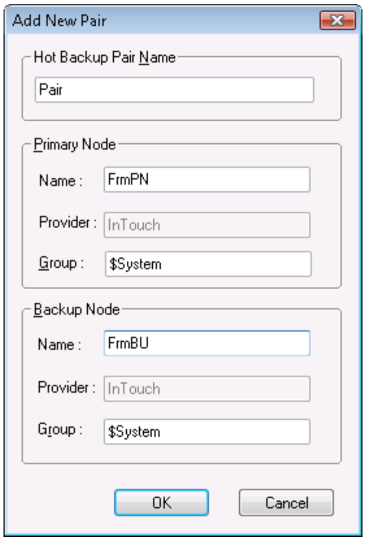
When you set up a redundant hot backup pair, you:

- Create a hot backup pair.
- Set the alarm record key fields.
- Create an alarm record mapping file.
- Import the alarm record mapping file.

To create a hot backup pair

1. Open the InTouch application in WindowMaker. In this example, the application runs on the FrmAp node.
2. Open the Alarm Hot Backup Manager. Do the following:
    a. In the **Tools** view, expand **Applications**.
    b. Double-click **Alarm Hot Backup Manager**.
3. Click **New Pair**. The **Add New Pair** dialog box appears.

4. Complete the options of the **Add New Pair** dialog box, as shown in the following figure.



Add New Pair

Hot Backup Pair Name: Pair

Primary Node
- Name : FrmPN
- Provider : InTouch
- Group : $System

Backup Node
- Name : FrmBU
- Provider : InTouch
- Group : $System

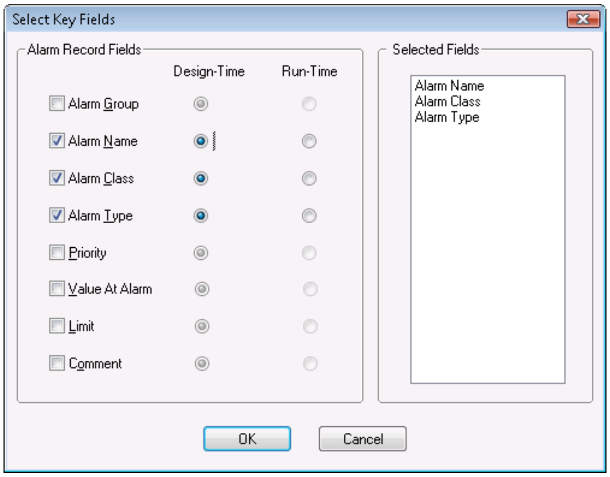
5. Click **OK** to return to the **Alarm Hot Backup Manager** dialog box.
6. Keep the **Alarm Hot Backup Manager** dialog box open within WindowMaker.

You are done with the first step to create a hot backup pair. Next, complete the following procedure to generate a unique mapping key to the paired alarm records stored in each provider’s alarm repository.

To map alarm record key fields

1. Select the hot backup pair in the list.
2. Click **Set Key Fields**. The **Select Key Fields** dialog box appears.

   Complete the options of the **Select Key Fields** dialog box, as shown in the following figure.The alarms between the primary and backup provider are logically consistent but have been assigned different names and belong to different alarm groups. A unique mapping key to records stored in each provider’s alarm repository can be generated by selecting **Alarm Group**, **Alarm Name**, **Alarm Class,** and **Alarm Type** as **Design-Time** options.



Select Key Fields

Alarm Record Fields

	Design-Time	Run-Time
☐ Alarm Group	○	○
☑ Alarm Name	●	○
☑ Alarm Class	●	○
☑ Alarm Type	●	○
☐ Priority	○	○
☐ Value At Alarm	○	○
☐ Limit	○	○
☐ Comment	○	○

Selected Fields
Alarm Name
Alarm Class
Alarm Type

3. Click **OK**. When a message appears, click **Yes**.

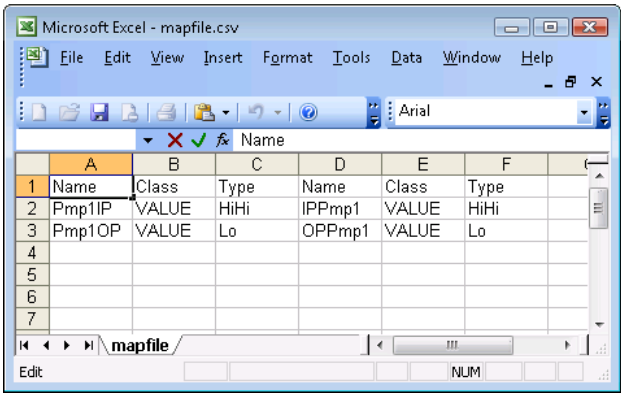
You are done with the second step to create an alarm record mapping key.

In this scenario all three nodes are running InTouch applications. The two provider nodes generate equivalent alarms, but are using different tagnames. The primary provider generates two summary alarms when a pump's inlet and outlet pressures are too high. The backup provider generates two logically identical alarms for the same pump pressure alarm conditions. Next, complete the following procedure to create a mapping file that associates equivalent records stored in each provider's alarm repository.

To create an alarm mapping file

1. Create a .csv file with Excel or a text editor like Notepad.
2. Enter the names of the file headers in the same order as the alarm record field options of the **Select Key Fields** dialog box.

   In this example, the file headers should be ordered by alarm group, alarm name, the class of alarm, and the type of alarm condition.
3. Map the alarms between the two providers on each row of the file.
4. The example of the Excel file below shows how the headers and alarm conditions should be specified for the two providers of the hot backup pair. Save the mapping file to a location accessible to the Hot Backup Manager running on the client node.


Microsoft Excel - mapfile.csv
File Edit View Insert Format Tools Data Window Help
Arial
Name
mapfile
Edit
NUM

	A	B	C	D	E	F
1	Name	Class	Type	Name	Class	Type
2	Pmp1IP	VALUE	HiHi	IPPmp1	VALUE	HiHi
3	Pmp1OP	VALUE	Lo	OPPmp1	VALUE	Lo
4						
5						
6						
7						

You are done with the third step to create an alarm record mapping file.

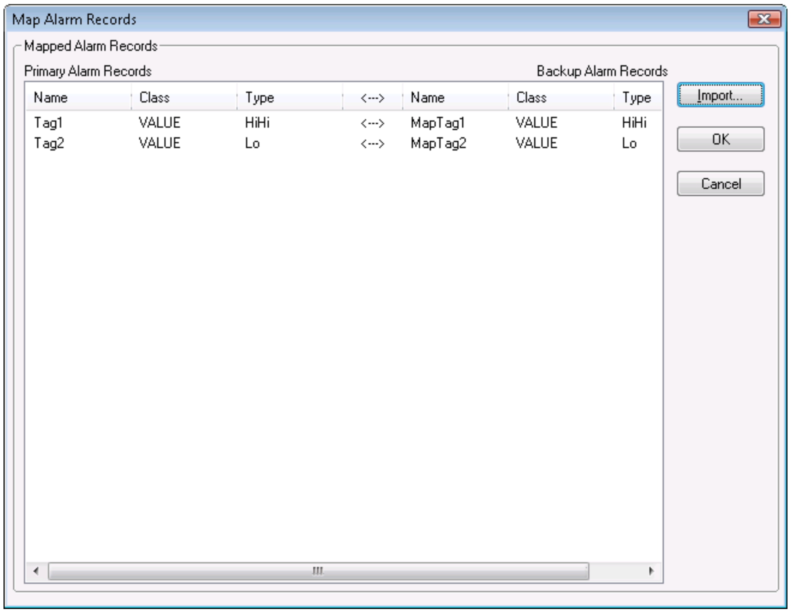
In the last step, you import the contents of the alarm mapping file to the Hot Backup Manager. In this example, the client application knows which pump pressure alarm records to acknowledge between the two alarm providers.

To import an alarm record mapping .csv file

1. Open the **Alarm Hot Backup Manager**.

   The alarm backup pair you created earlier should be listed.
2. Click **Map Alarms**. The **Map Alarm Records** dialog box appears.
3. Click **Import**. The **Open** dialog box appears.

4. Select your mapping file and click **Open**. The **Map Alarm Records** dialog box lists the alarm mapping records from the file.



Map Alarm Records

Mapped Alarm Records

Primary Alarm Records / Backup Alarm Records

Name	Class	Type	<--->	Name	Class	Type
Tag1	VALUE	HiHi	<--->	MapTag1	VALUE	HiHi
Tag2	VALUE	Lo	<--->	MapTag2	VALUE	Lo

5. Click **OK**. The Hot Backup Manager begins importing records from the file.

6. Click **OK** after all mapping records have been imported.

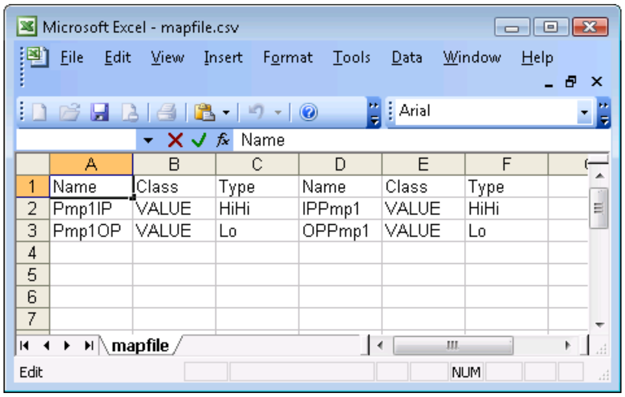
You can now run the hot backup application.

Acknowledgement Synchronization Example

For this example:

- Alarm Name, Alarm Class, and Alarm Type are selected as design-time key fields.
- Alarm Group is selected as a run-time field.

The following alarm record map file was created using Microsoft Excel.



Microsoft Excel - mapfile.csv

	A	B	C	D	E	F
1	Name	Class	Type	Name	Class	Type
2	Pmp1IP	VALUE	HiHi	IPPmp1	VALUE	HiHi
3	Pmp1OP	VALUE	Lo	OPPmp1	VALUE	Lo
4						
5						
6						
7						

The Pmp1IP alarm is mapped to the IPPmp1 alarm. Both have a Class of VALUE and a Type of HIHI.

The Pmp1OP alarm is mapped to the OPPmp1 alarm. Both have a Class of VALUE and a Type of Lo.

- When the HiHi alarm for Pmp1IP is acknowledged at the primary alarm node, the acknowledgment also appears on the HiHi alarm for IPPmp1 at the secondary provider node, provided that the alarm group names on both nodes remain the same.
- When the Low alarm for Pmp1OP is acknowledged at the primary alarm node, the acknowledgment also appears on the Low alarm for OPPmp1 at the secondary provider node, provided that the alarm group names on both nodes remain the same.

Acknowledgement synchronization occurs only if the design-time and run-time mapping match.

You can select any combination of design-time and run-time alarm record fields for mapping. However, make sure that the mappings do not result in multiple references.

For example, if two alarm record fields such as Class and Priority are selected, it is very possible that more than one alarm matches the criteria. In such a case, the Hot Backup synchronization is not guaranteed to work. In the process of propagating the acknowledgment, a random alarm that matches the criteria may also be picked up, while other matching alarms may be left unacknowledged.

Notes Regarding Hot Backup Pairs

- You can use a hot backup only for InTouch 7.11 and later clients.
- If the Distributed Alarm Display object queries a hot backup pair and then queries the primary provider again separately, the Distributed Alarm Display object shows duplicate records.
- Do not configure a provider as a primary or secondary of more than one hot backup pair.
- If a record at the primary provider is acknowledged and the secondary provider (which was down when the acknowledgment took place) starts up at a later time, the time stamp of the acknowledged record is identical with the record in the primary provider.
- The alarm consumer querying a hot backup pair shows the individual node name as the provider.
- You can choose any combination of design-time and run-time alarm record fields for mapping. However, be sure that the mappings do not result in multiple references.
- When mapping the Value and Limit key fields, the values are rounded off to the fourth decimal place and then mapped.
- An alarm record that does not have the specific combination of design-time and run-time mapping uses the default runtime mapping.

Chapter 14

Creating an Alarm Audit Trail

About Creating an Alarm Audit Trail

When you configure an InTouch alarm provider to use either operating system or ArchestrA authentication and an alarm occurs, the alarm display contains the full name of the operator in the Operator Full Name column, assuming the operator is logged on.

For example, if a user is registered in the PLANT_FLOOR domain with a user ID of JohnS and a full name of John Smith, the Operator Full Name column contains John Smith. If the alarm is subsequently acknowledged, and the node performing the acknowledgement is set to use operating system or ArchestrA security, the Operator Full Name column is updated to show the full name of the acknowledgement operator. Otherwise, the alarm display shows a computer name concatenated with whatever is in the $Operator tag.

InTouch security can include an operator’s full name with alarm acknowledgements. This is also possible on records pertaining to alarm detection. In most organizations, a logon ID is not a person's full name, but rather an abbreviation or role classification.

When you configure operating system authentication for the provider and consumer InTouch nodes:

- The alarm display shows full names when alarms are generated and when acknowledgements are performed.
- The alarm printer prints full names when alarms are generated and when acknowledgements are performed.
- The Alarm DB Logger records domain name, log on user ID, and full user name with each alarm record for both Operator and AckOperator fields. This allows for unique identification even if an organization has two employees with identical full names.
- The Operator field shows the user account in the DomainName\UserName format.

Acknowledging Alarms that Require Authentication

Some industries require that an explicit "signature" or user authentication be performed when acknowledging certain types of alarms. InTouch takes advantage of the Alarm Client control or script functionality to perform this type of authentication operation. The alarm priority is the key factor used to determine if the alarm or alarms to be acknowledged require a specific user signature.

You can configure alarms to require authentication so that users can acknowledge them. Alarms configured with authentication required means that the run time user must enter his or her credentials in order to acknowledge the alarm or group of alarms. If the system is configured with a smart card reader, the user can enter smart card credentials.

This section describes how to acknowledge alarms in WindowViewer that require authentication.

For information about configuring the Alarm Client to require authentication for acknowledging alarms, see the Guide to the ArchestrA Alarm Control, Chapter 3, "Using the Alarm Control at Run Time".

For information about using the SignedAlarmAck() function to configure authentication behavior for acknowledging alarms, see the *Industrial Graphic Editor User Guide*, Chapter "Adding and Maintaining Graphic Scripts".

About Acknowledging Alarms in WindowViewer that Require Authentication

Acknowledging alarms configured for authentication requires the following:

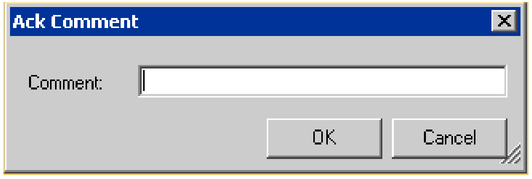
- Security must be enabled for the Galaxy.
- Security must be enabled for a deployed InTouchViewApp.
- The InTouchViewApp must include at least one Alarm Client control configured to display alarms and events and to require a signature (authentication) for alarm acknowledgement, and with minimum and maximum values for the alarm priority range.
- Run-time operators must have the appropriate user name, password, and operational permissions configured within the Galaxy: An operator must have sufficient privileges to run WindowViewer.

Regardless of who is currently logged on as the run-time user for the InTouch application, alarms configured to require a signature for alarm acknowledgement always require user authentication. This does not affect the session of the logged-on user.

Alarm Acknowledgement Basic Run-Time Behavior

When the operator selects one or more alarms and attempts to acknowledge them:

- The Alarm Client will check whether it has been configured to require acknowledgement signatures. If so, it checks whether any selected alarm falls within the configured priority range. If so, it requires a signature to acknowledge all the selected alarms.
- If no signature is required, a pop-up acknowledgement dialog displays. It may have a text box for an acknowledgement comment if so configured.

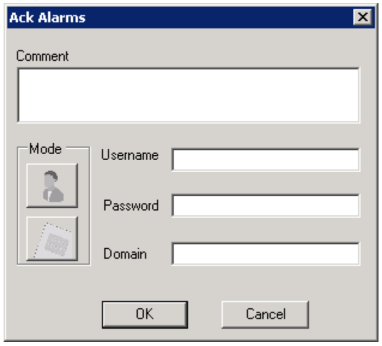


- If the operator credentials are valid, the Alarm Client attempts to acknowledge all of the selected alarms.
- In the Alarm Client grid, the signing user is identified as the person who acknowledged all of the selected alarms.

- The Alarm Client prefixes the text "Signed ACK" at the beginning of the acknowledgement comment to indicate that this was a signed acknowledgement.
- If none of the selected alarms had priority in the required range, the Alarm Client prefixes the text "Std ACK" at the beginning of the acknowledgement comment to indicate that this was a standard acknowledgement.

To acknowledge alarms that require authentication

1. In WindowViewer, select one or more unacknowledged alarms. Right click and select the ack operation you wish to perform. If any of the alarms are configured to require a signature, the **Ack Alarms** dialog box appears.



   If Smart Cards are not enabled, the **Mode** buttons for selecting either Smart Card or Password authentication are disabled.

2. Add a comment in the **Comment** box if configured for commenting.
3. If you are authenticating using a network user account, the user account options are shown.

   Do the following.

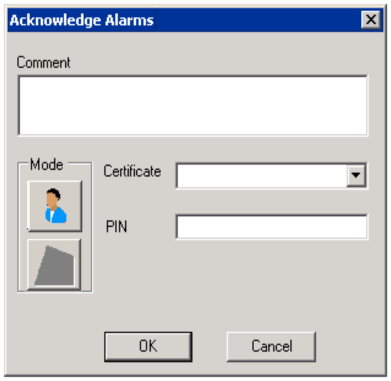
   a. In the **Username** box, type your user name. The name of the currently logged-on user is shown by default. If no user is currently logged on, the box is blank.

   b. In the **Password** box, type the password associated with the user name.

   c. In the **Domain** box, type the domain name. If the security mode is ArchestrA Galaxy, then the domain displayed is ArchestrA and you cannot modify it.

   d. Click **OK**.

4. If you are authenticating using a Smart Card, the Smart Card **Ack Alarms** dialog box appears.



   Do the following to authenticate using a Smart Card.

a. In the **Certificate** list, select your Smart Card certificate. The certificate list appears as domain_name/user_name. For a certificate to appear in the list, Smart Card must be currently inserted into a reader attached to the computer. The certificate of the currently logged-on user is shown by default. If you insert or remove a card while the **Secured Write** dialog box is open, the certificate list automatically updates.

b. In the **PIN** box, enter the PIN for the Smart Card being used.

c. Click **OK**.

To authenticate using your name, password, and domain instead, click the Mode button. Go to Step 3.

Appendix A

Working with the Distributed Alarm Display Object

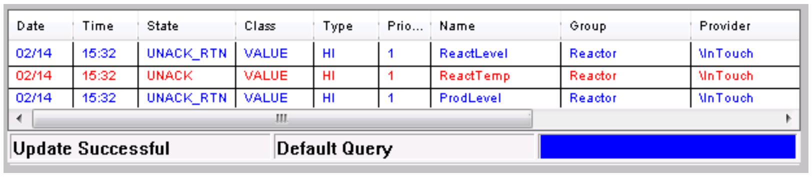
About Working With the Distributed AlarmDisplay Object

The Distributed Alarm Display object is included in this version of the InTouch HMI to support applications developed with InTouch version 7 and earlier. As the Distributed Alarm Display object is a legacy object, you should use the Alarm Viewer Control instead to create alarm displays with more recent versions of the InTouch HMI.

The Distributed Alarm Display object is included in this version of the InTouch HMI to support applications developed with InTouch version 7 and earlier. As the Distributed Alarm Display object is a legacy object, you should use the Alarm Viewer Control instead to create alarm displays with more recent versions of the InTouch HMI.

About the Distributed Alarm Display Object

The Distributed Alarm Display object provides a single display to show both local and remote alarms.



Date	Time	State	Class	Type	Prio...	Name	Group	Provider
02/14	15:32	UNACK_RTN	VALUE	HI	1	ReactLevel	Reactor	\InTouch
02/14	15:32	UNACK	VALUE	HI	1	ReactTemp	Reactor	\InTouch
02/14	15:32	UNACK_RTN	VALUE	HI	1	ProdLevel	Reactor	\InTouch

Update Successful

Default Query

This display object's features include built in scroll bars, sizable columns, multiple selection of alarms, a status bar, a shortcut menu, and colors based on alarm priority and state.

The Distributed Alarm Display object includes properties that can set the appearance of the alarm display (including the information that is shown), the colors used for various alarm conditions, and which alarm group and alarm priority levels are shown.

For more information about the display object, see *Using a Distributed Alarm Display Object at Run Time* on page 340.

Distributed Alarm Display Object Guidelines

Observe the following guidelines when using the Distributed Alarm Display object:

- Each display must have an identifier so that any associated QuickScript functions knows which display to modify. This identifier, entered in the **Display Name** box in the **Alarm Configuration** dialog box, must be unique for each display.
- Displays should not overlap other InTouch objects, such as window controls or graphic objects. You can easily verify this by clicking on the Distributed Alarm Display object in WindowMaker, and checking the display's "handles." The handles should not touch other objects on the screen.
- Displays should be used sparingly. Placing numerous displays on one screen can result in reduced system performance. When possible, limit the number of displays on your window and call further windows with additional displays.

Configuring a Distributed Alarm Display Object at Design Time

You can configure:

- General features, such as a status bar, scroll bars, and so on.
- The columns and sorting order.
- The alarm query to use to retrieve alarm records.
- The time format the alarm records are shown in.
- The font and colors for the shown alarm records.
- What run-time users can do in the display, such as resize columns, select alarms, access a shortcut menu, and so on.

Creating a Distributed Alarm Display Object

You create a Distributed Alarm Display object just as you would a wizard.

To create a Distributed Alarm Display object

1. Click the **Wizard** tool in the **Wizard/ActiveX Toolbar**. The **Wizard Selection** dialog box appears.
2. Select **Alarm Displays** in the list of wizards.
3. Double-click the **Dist. Alarm Display** wizard. The dialog box closes and your window reappears with the cursor in the "paste" mode.
4. Click in the window to paste the Distributed Alarm Display object. To size the wizard, drag the selection handles.

You are now ready to configure the display.

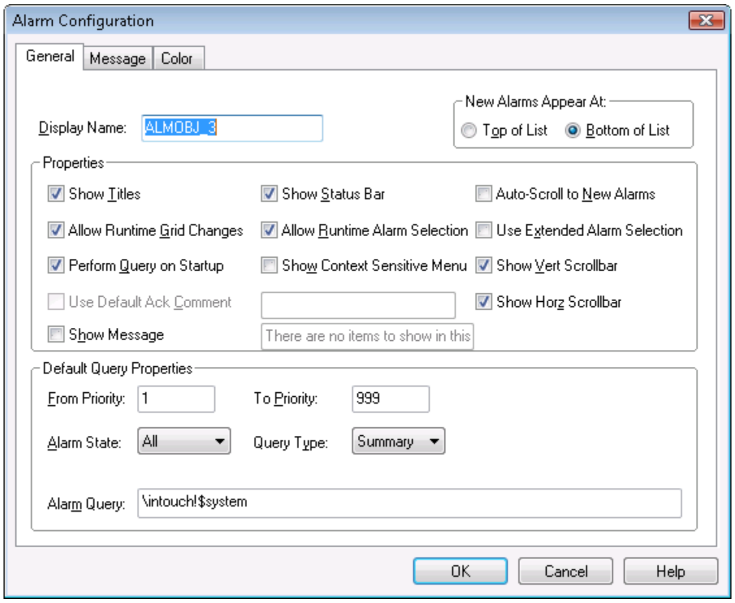
Configuring the Display Properties of the Grid

For the display grid, you can configure:

- A title bar, status bar, and scroll bars.
- Where new alarms appear in the grid and whether to auto-scroll to them.
- A default message to be shown if there are no alarm records to show.

To configure the appearance of the grid

1. Right-click the Distributed Alarm Display object and then click **Properties**. The **Alarm Configuration** dialog box appears.



Alarm Configuration

General | Message | Color

Display Name: ALMOBJ_3

New Alarms Appear At: ○ Top of List ● Bottom of List

Properties

☑ Show Titles ☑ Show Status Bar ☐ Auto-Scroll to New Alarms

☑ Allow Runtime Grid Changes ☑ Allow Runtime Alarm Selection ☐ Use Extended Alarm Selection

☑ Perform Query on Startup ☐ Show Context Sensitive Menu ☑ Show Vert Scrollbar

☐ Use Default Ack Comment ☑ Show Horz Scrollbar

☐ Show Message: There are no items to show in this

Default Query Properties

From Priority: 1 To Priority: 999

Alarm State: All Query Type: Summary

Alarm Query: \intouch!$system

2. In the **Display Name** box, type the name for the alarm display. This name must be unique for each alarm display used. This name is used throughout the system for referring to this object for execution of tasks such as alarm acknowledgment and queries.

3. In the **New Alarms Appear At** area, configure where you want new alarms to appear in the object:

   - Click **Top of List** to show the most recent alarm at the top of the list.
   - Click **Bottom of List** to show most recent alarm at the bottom of the list.

4. In the **Properties** area, configure title bar, status bar, and scroll bars. Do any of the following:

   - Select the **Show Titles** check box to show the alarm message title bar.
   - Select the **Show Status Bar** check box to show the status bar.
   - Select the **Show Vert Scrollbar** check box to show the vertical scroll bar.
   - Select the **Show Horz Scrollbar** check box to show the horizontal scroll bar.

5. Select the **Show Message** check box to show a default message if there are no alarm records to show. Type the message in the box.

6. Select the **Auto-Scroll to New Alarms** check box to have the selection automatically jumps to the new alarm. New alarms are defined as those that are not currently shown within the display object.

7. Click **OK**.

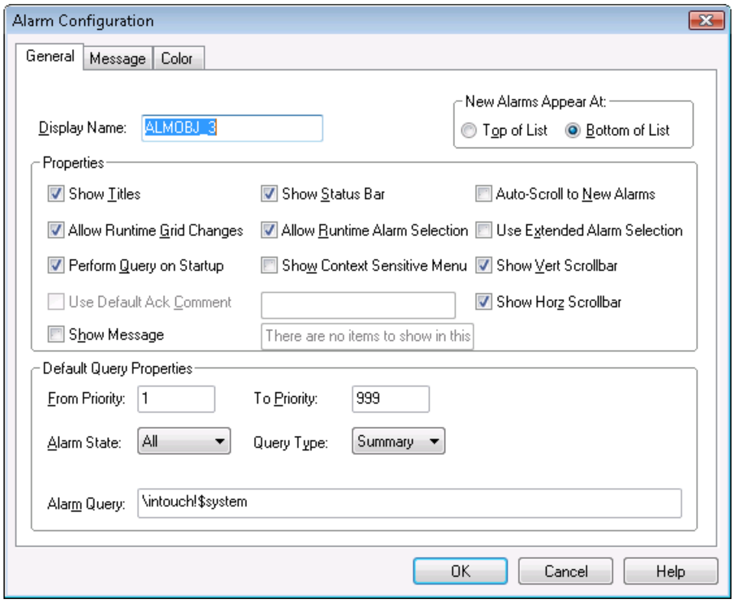
Controlling Which Features Users Can Access at Run Time

You can allow the run-time user to change the column settings, select alarms, and open the shortcut menu.

Note: You can use script functions to run the commands that appear on the shortcut menu.

To configure the run-time features

1. Right-click the Distributed Alarm Display object and then click **Properties**. The **Alarm Configuration** dialog box appears.



Alarm Configuration

General | Message | Color

Display Name: ALMOBJ_3

New Alarms Appear At: ○ Top of List ● Bottom of List

Properties

☑ Show Titles
☑ Show Status Bar
□ Auto-Scroll to New Alarms
☑ Allow Runtime Grid Changes
☑ Allow Runtime Alarm Selection
□ Use Extended Alarm Selection
☑ Perform Query on Startup
□ Show Context Sensitive Menu
☑ Show Vert Scrollbar
□ Use Default Ack Comment
☑ Show Horz Scrollbar
□ Show Message
There are no items to show in this

Default Query Properties

From Priority: 1
To Priority: 999
Alarm State: All
Query Type: Summary
Alarm Query: \intouch!$system

2. Configure the which options are available at run time. Do any of the following:
   - Select the **Allow Runtime Grid Changes** check box to allow the user to change column settings.
   - Select the **Show Context Sensitive Menu** check box to enable the shortcut menu.
   - Select the **Allow Runtime Alarm Selection** check box to allow the user to select alarms.
   - Select the **Use Extended Alarm Selection** check box to allow the user to select multiple alarms by holding down Ctrl or Shift in conjunction with mouse selection. The default is to toggle selection of alarms by simply clicking on them.
3. Click **OK**.

Configuring Which Alarms to Show

You can configure the Distributed Alarm Display object to show alarms based on:

- Priority.
- State, such as acknowledged or unacknowledged.
- Type, either summary or historical.

When you configure the alarm query, you use text only. You cannot use tags. Example queries are as follows.

Full path to Alarm Group:

\\Node\InTouch!Group

Full path to local Alarm Group

\InTouch!Group

Another Group List:

GroupList

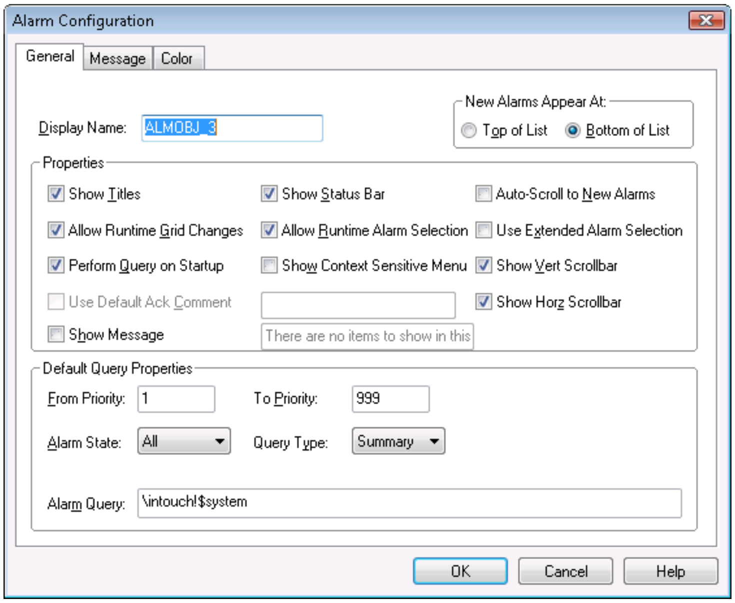
To perform multiple queries, separate each query with a space. For example:

\InTouch!Group GroupList

The default query properties are only used if you select the **Perform Query on Startup** check box or if the almDefQuery() function is executed.

To configure which alarms to show

1. Right-click the Distributed Alarm Display object and then click **Properties**. The **Alarm Configuration** dialog box appears.



Display Name: ALMOBJ_3

New Alarms Appear At: ○ Top of List ● Bottom of List

Properties

☑ Show Titles ☑ Show Status Bar □ Auto-Scroll to New Alarms

☑ Allow Runtime Grid Changes ☑ Allow Runtime Alarm Selection □ Use Extended Alarm Selection

☑ Perform Query on Startup □ Show Context Sensitive Menu ☑ Show Vert Scrollbar

□ Use Default Ack Comment ☑ Show Horz Scrollbar

□ Show Message There are no items to show in this

Default Query Properties

From Priority: 1 To Priority: 999

Alarm State: All Query Type: Summary

Alarm Query: \intouch!$system

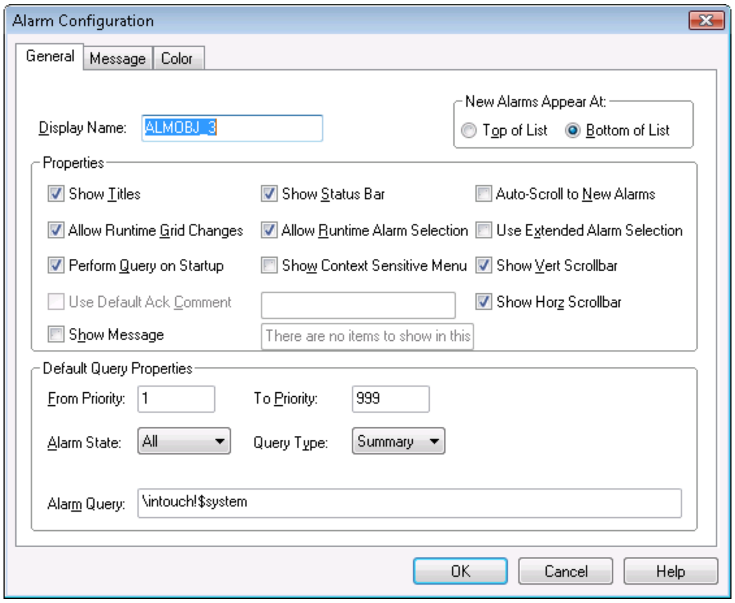
2. Select the **Perform Query on Startup** check box.
3. In the **Default Query Properties** area, configure the default query for the object.
   - In the **From Priority** box, type the default minimum alarm priority.
   - In the **To Priority** box, type the default maximum alarm priority.
   - In the **Alarm State** list, click the default alarm state to query (All, Unack, Ack).
   - In the **Query Type** list, click the alarm type, either Summary or Historical.
   - In the **Alarm Query** box, type the initial alarm query.
4. Click **OK**.

Configuring a Default Alarm Comment

You can configure a default comment to be used when an operator acknowledges an alarm. If you do not configure a default comment, when the operator acknowledges an alarm, a dialog box appears to let the operator enter a comment. The dialog box can be filled in or left blank.

To configure a default comment

1. Right-click the Distributed Alarm Display object and then click **Properties**. The **Alarm Configuration** dialog box appears.



Display Name: ALMOBJ_3

New Alarms Appear At: ○ Top of List ● Bottom of List

Properties

☑ Show Titles ☑ Show Status Bar □ Auto-Scroll to New Alarms

☑ Allow Runtime Grid Changes ☑ Allow Runtime Alarm Selection □ Use Extended Alarm Selection

☑ Perform Query on Startup □ Show Context Sensitive Menu ☑ Show Vert Scrollbar

□ Use Default Ack Comment ☑ Show Horz Scrollbar

□ Show Message There are no items to show in this

Default Query Properties

From Priority: 1 To Priority: 999

Alarm State: All Query Type: Summary

Alarm Query: \intouch!$system

2. Select the **Show Context Sensitive Menu** check box.
3. Select the **Use Default Ack Comment** check box and then type the comment text in the box.
4. Click **OK**.

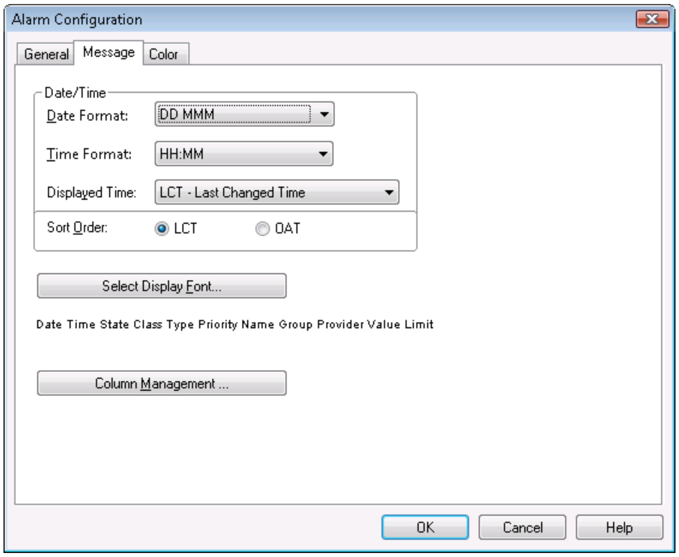
Configuring the Time Format for Alarm Records

The original alarm time is the date/time stamp of the onset of the alarm. If tag is an I/O tag, then it is the time stamp from the I/O Server if that server is capable of passing time stamps.

To configure the alarm display time format

1. Right-click the Distributed Alarm Display object and then click **Properties**. The **Alarm Configuration** dialog box appears.

2. Click the **Message** tab.



Date Format: DD MMM

Time Format: HH:MM

Displayed Time: LCT - Last Changed Time

Sort Order: ● LCT ○ OAT

Date Time State Class Type Priority Name Group Provider Value Limit

3. In the **Date Format** list, click the format for the date. Available formats are:

Selection	Shows	Selection	Shows
DD MMM	28 Feb	**MM/DD**	02/28
DD MM YYYY	28 Feb 2007	**MM/DD/YY**	02/28/07
DD/MM	28/07	**MMM DD**	Feb 28
DD/MM/YY	28/02/07	**MMM DD YYYY**	Feb 28 2007
YY/MM/DD	07/02/28	**YYYY/MM/DD**	2007/02/28

4. In the **Time Format** list, click the format for the time. Use the values in this list as a template to specify the format of the time. For example, to specify the time as 10:24:30 AM, use HH:MM:SS AP. The template characters are as follows:

Character	Description
AP	Selects the AM/PM format. For example, three o'clock in the afternoon is shown as 3:00 PM. A time without this designation defaults to 24 hour military time format. For example, three o'clock in the afternoon is shown as 15:00.
HH	Shows the hour the alarm/event occurred.
MM	Shows the minute the alarm/event occurred.
SS	Shows the second the alarm/event occurred.
SSS	Shows the millisecond the alarm/event occurred.

5. In the **Sort Order** area, configure the order in which you want the alarms to be sorted in the object:
   - Click **OAT** to use the original alarm time, which is the date/time stamp of the onset of the alarm.
   - Click **LCT** to use the last alarm change time, which is the date/time stamp of the most recent change of status for the instance of the alarm: onset of the alarm, change of sub-state, return to normal, or acknowledgment.
6. Click **OK**.

Configuring the Font for Alarm Records

You can set the font for the records and the heading in the control.

To configure the font properties

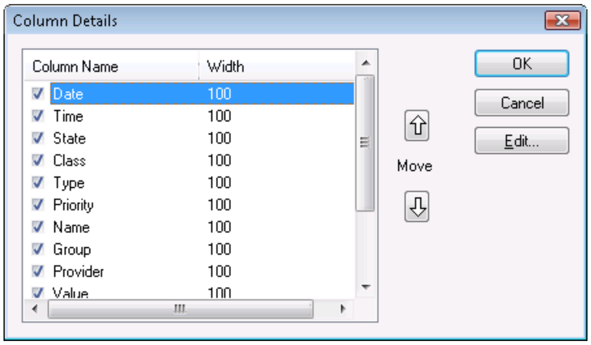
1. Right-click the Distributed Alarm Display object and then click **Properties**. The **Alarm Configuration** dialog box appears.
2. Click the **Message** tab.
3. Click **Select Display Font**. The standard Windows **Font** dialog box appears.
4. Configure the font and then click **OK**.

Configuring the Columns for Alarm Records

You can select the columns to show, specify the column order, and set the column names and widths.

To configure the display column details

1. Right-click the Distributed Alarm Display object and then click **Properties**. The **Alarm Configuration** dialog box appears.
2. Click the **Message** tab.
3. Click **Column Management**. The **Column Details** dialog box appears.



Column Name	Width
☑ Date	100
☑ Time	100
☑ State	100
☑ Class	100
☑ Type	100
☑ Priority	100
☑ Name	100
☑ Group	100
☑ Provider	100
☑ Value	100

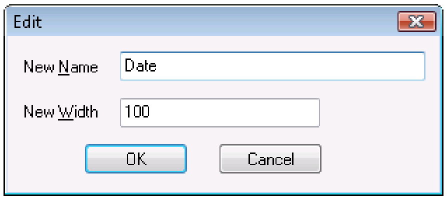
4. Select the check box in the **Column Name** list to show that column in the Distributed Alarm Display object. You must select at least one column. The following table describes the columns:

Column	Description
Date	Shows the date in the format selected from the **Message** tab.

Column	Description
Time	Shows the time in the format selected from the **Message** tab.
State	Shows the state of the alarm.
Class	Shows the category of the alarm.
Type	Shows the alarm type.
Priority	Shows the alarm priority.
Name	Shows the alarm/tagname.
Group	Shows the Alarm Group name.
Provider	Shows the name of the alarm provider.
Value	Shows the value of the tagname when the alarm occurred.
Limit	Shows the alarm limit value of the tagname.
Operator	Shows the logged-on operator's ID associated with the alarm condition.
Comment	Shows the tagname comment. This comment is typed in the **Alarm Comment** box when the tagname's alarm was defined in the database.

5. To rearrange the columns, select the column name and use the Move Up and Down arrow buttons. The column name appearing at the top of the **Column Details** dialog box is the column shown to the furthest left of the alarm display.

6. To edit the column name and width, select a column name and then click **Edit**. The **Edit** dialog box appears for that column.



Edit

New Name: Date

New Width: 100

   a. In the **New Name** box, type a new name if you want to show a column name other than the default column name.

   b. In the **New Width** box, type in a default column width. The column width can range from 1 to 999 pixels. The default column width is 100 pixels.

   c. Click **OK** in the **Edit** dialog box.

7. Click **OK** in the **Column Details** dialog box.

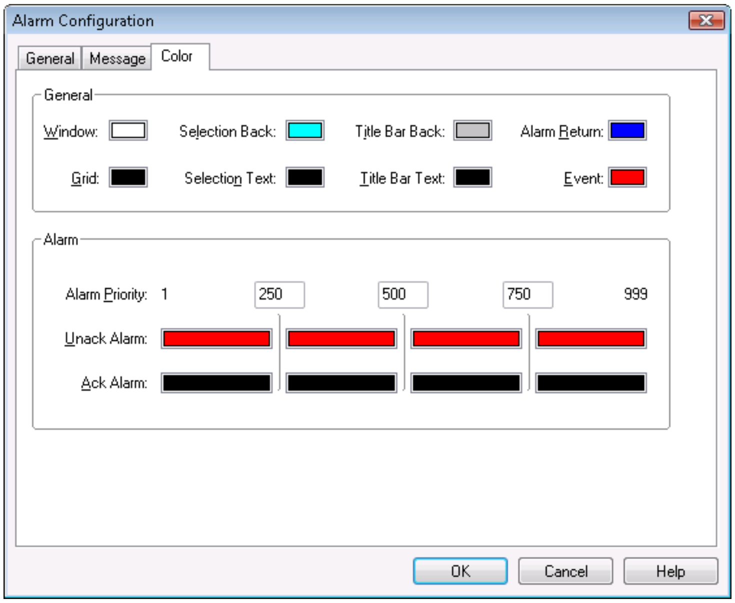
8. Click **Apply**.

Configuring Colors for Alarm Records

You can configure colors for various parts of the Distributed Alarm Display object, such as the background color and the color of selected records. You can also configure different colors for alarm records of different ranges.

To configure the alarm display colors

1. Right-click the Distributed Alarm Display object and then click **Properties**. The **Alarm Configuration** dialog box appears.
2. Click the **Color** tab.



Alarm Priority: 1 250 500 750 999

3. In the **General** area, click each color box to open the InTouch color palette. Click the color that you want to use for each of the following:

Option	Description
Window	Sets the display background color.
Grid	Sets the grid color.
Selection Back	Sets the highlighted text background color.
Selection Text	Sets the highlighted text color.
Title Bar Back	Sets the title bar background color (visible only if the **Show Titles** option is on).
Title Bar Text	Sets the title bar text color (visible only if the **Show Titles** option is on).
Alarm Return	Sets the color of returned alarms (alarms that have returned to normal without being acknowledged).
Event	Sets the color of event alarms.

4. In the **Alarm Priority** boxes, type the breakpoint values for the alarm display.
5. Click the **UnAck Alarm** and **Ack Alarm** color boxes to open the InTouch palette. Click the color in the palette that you want to use.
6. Click **OK**.

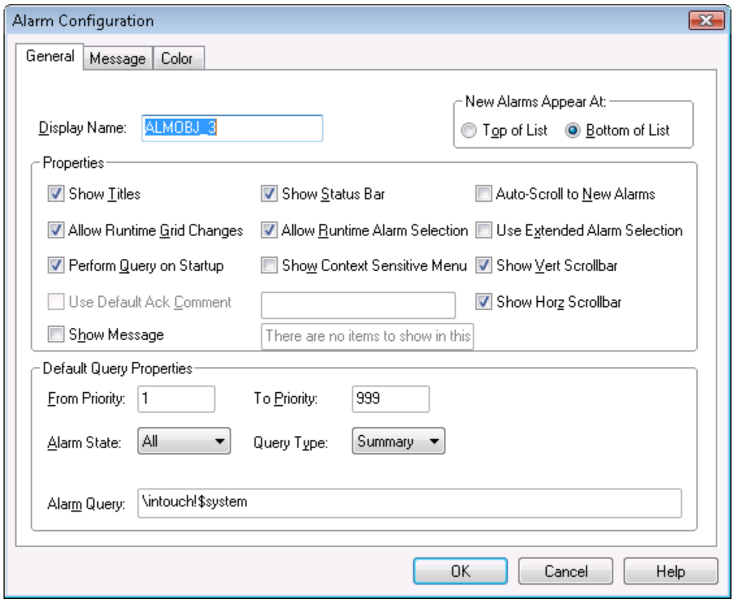
Configuring the Display Type

The Distributed Alarm Display object can show summaries of active alarms or listings of historical alarms.

You can also change the display type dynamically at run time. This can be done, for example, by running the almQuery() script function. The almQuery() script function uses parameters that you can use to set the specified Distributed Alarm Display object (for example: "AlmObj_1") to a specified display type (for example: "Summary"). For more information, see *almQuery() Function* on page 366.

To configure the query default

1. Right-click the Distributed Alarm Display object and then click **Properties**. The **Alarm Configuration** dialog box appears.



Display Name: ALMOBJ_3

New Alarms Appear At: ○ Top of List ● Bottom of List

Properties

☑ Show Titles ☑ Show Status Bar □ Auto-Scroll to New Alarms
☑ Allow Runtime Grid Changes ☑ Allow Runtime Alarm Selection □ Use Extended Alarm Selection
☑ Perform Query on Startup □ Show Context Sensitive Menu ☑ Show Vert Scrollbar
□ Use Default Ack Comment ☑ Show Horz Scrollbar
□ Show Message There are no items to show in this

Default Query Properties

From Priority: 1 To Priority: 999
Alarm State: All Query Type: Summary
Alarm Query: \intouch!$system

2. In the **Query Type** list, click the type of alarm display that you want to use for the run-time default.
3. Click **OK**.

Using the Distributed Display to Monitor Local Alarms

You can use the Distributed Alarm Display object to show and acknowledge both local and remote alarms.

To set up a display to monitor just local alarms

1. Right-click the Distributed Alarm Display object and then click **Properties**. The **Alarm Configuration** dialog box appears.
2. In the **Alarm Query** box, type: `\InTouch!$System`

You can substitute any valid alarm group for $System. You can also define an alarm group list containing just \InTouch!$System, and then use this group list instead of a direct reference.

3. Configure the other parameters for the type of display and any filtering your application requires.

Using a Distributed Alarm Display Object at Run Time

The Distributed Alarm Display object uses a grid to show the alarm messages. This grid allows you to dynamically size column widths simply by selecting a column handle and dragging it to the desired width. This functionality is available only during run time.

Grid column changes are not saved; therefore, if you make grid column changes and close the window containing the alarm display, the grid columns will again be at their default width upon re-opening that window. You can adjust the default column width in WindowMaker.

The grid allows you to select single or multiple alarms in a list box. The selected alarms can be acknowledged by using the almAckSelect() QuickScript function. When you configure the Distributed Alarm Display object, you can also define the selection behavior to allow either toggle selection (item by item) or multiple selection (holding down CTRL or SHIFT keys in conjunction with a mouse click to select multiple alarms). You can turn off run-time selection.

You can also configure up to eight different colors for each shown alarm message based on the priority of the alarm and whether or not it is acknowledged.

The scroll bars are available if they were turned on at configuration time.

The alarm display object may have controls to page through alarm records, depending on how the control is configured.

Sizable Display Columns

The Distributed Alarm Display object uses a grid to hold the alarm messages. At run-time, you can dynamically size the column widths simply by selecting a column and dragging it. You can also double-click on the vertical grid line to automatically size the column. This functionality is available only during run time. Column resizing must be turned on at configuration time.

Grid column changes are not saved when you close the window containing the alarm display.

Multiple Selection

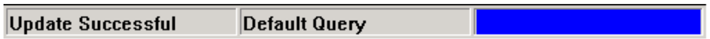
You can select a single or multiple alarms in a list box, depending on how the alarm display is configured.

Alarm Message Colors

Up to eight different colors can be used for each shown alarm message, based on the priority of the alarm and whether it is acknowledged or not.

Status Bar

Depending on how the alarm object is configured, the status bar shows a status message, the current alarm query, and a progress bar.



The left portion of the status bar shows the current status of the control.

These indicators provide an overview of the current state of the display query and provide details about the suppression available in the Distributed Alarm Display object. The right pane of the status bar is red when freeze is in effect and the left pane of the status bar is red when suppression is in effect.

The word "Suppression" shows in the left pane when suppression is in effect.

Feature	Description
Status Message	The status message at the left end of the status bar provides a more detailed description of the current query status.
Alarm Query	The Alarm Query provides a visual indication of the current alarm query.
Progress Bar	The update progress bar at the right end of the status bar provides a visual indication of the current query progress.

The status messages are as follows:

Status Message	State/Indicator	Progress Bar
None	No Query	None
Update Incomplete	Query Incomplete	Blue/Green
Update Successful	Query Complete	Red
Suppression	Query name	Solid Blue
Freeze	Query name	Red

Shortcut Menu

Depending on how the alarm object is configured, you can right-click on the object to open a shortcut menu for common commands:

Click this command	**To do this**
Ack Selected	Acknowledge the selected alarm.
Ack Others	Acknowledge all alarms in the display, or only visible alarms, selected groups, selected tagnames, and priorities.
Suppress Selected	Suppress the selected alarm.
Suppress Others	Suppress all alarms in the display, or only visible alarms, selected groups, selected tagname, and selected priorities.
Query Favorites	Opens the **Alarm Query** dialog box, where you can select the query to use.
Stats	Opens the **Alarm Statistics** dialog box.
Suppression	Opens the **Alarm Suppression** dialog box.
Freeze	Freezes the current display.

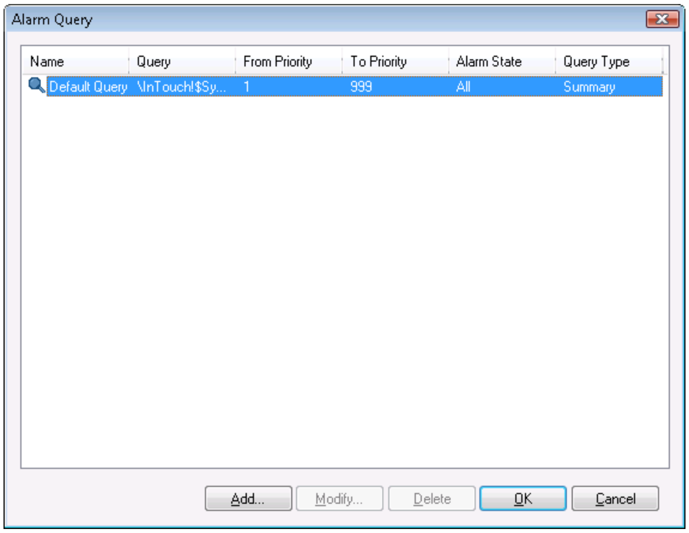
Selecting and Configuring Alarm Query Favorites

Use the **Query Favorites** command on the shortcut menu to quickly select an alarm query from a list of previously defined alarm queries. You can also create new named queries, edit an existing query, or delete an existing query.

Note: For multi-line alarm queries appearing in the Distributed Alarm Display, line separations appear as "garbage" characters. This does not affect the function.

To select an alarm query for display

1. At run time, right-click the Distributed Alarm Display and then click **Query Favorites**. The **Alarm Query** dialog box appears.



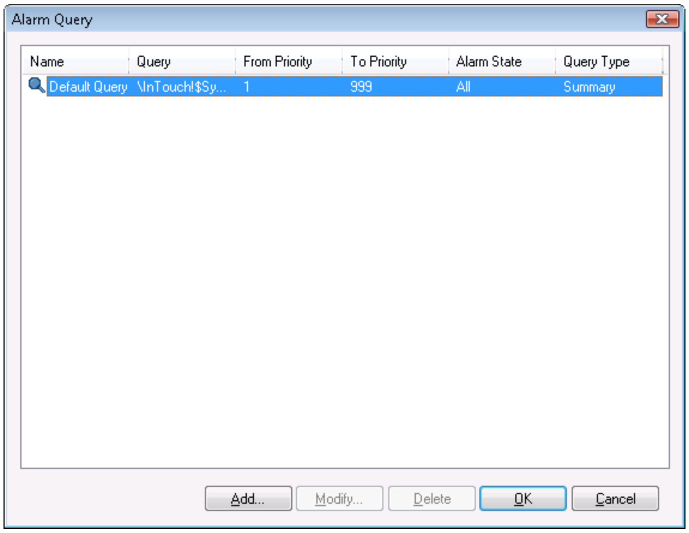
Name	Query	From Priority	To Priority	Alarm State	Query Type
Default Query	\InTouch!$Sy...	1	999	All	Summary

2. In the list of currently defined queries, select the named query to use.

3. Click **OK**. The Distributed Alarm Display object shows the alarm information for the selected query.

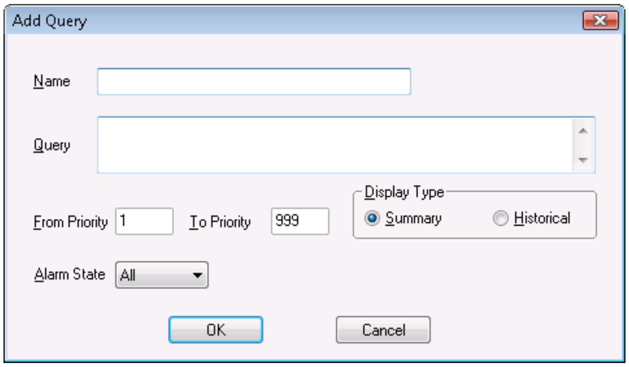
To add a new named query

1. At run time, right-click the Distributed Alarm Display and then click **Query Favorites**. The **Alarm Query** dialog box appears.



Name	Query	From Priority	To Priority	Alarm State	Query Type
Default Query	\InTouch!$Sy...	1	999	All	Summary

2. Click **Add**. The **Add Query** dialog box appears.



Add Query

Name

Query

From Priority 1

To Priority 999

Display Type: ● Summary ○ Historical

Alarm State All

3. Configure the query. Do the following:

    a. In the **Name** box, type the name for the query.

    b. In the **Query** box, type the sets of InTouch alarm queries that you want to perform. You can specify one or more alarm providers and groups.

    c. In the **From Priority** box, type the minimum alarm priority value (1 to 999). In the **To Priority** box, type the maximum alarm priority value (1 to 999).

    d. In the **Alarm State** list, click the alarm state that you want to use in the alarm query.

    e. In the **Display Type** area, click the type of alarms to show. For more information, see *Summary Alarms versus Historical Alarms* on page 27.

4. Click **OK** to close the **Add Query** dialog box.

5. Click **OK** in the **Alarm Query** dialog box.

To modify an existing named query

1. At run time, right-click the Distributed Alarm Display and then click **Query Favorites**. The **Alarm Query** dialog box appears.

2. In the list of currently defined queries, select the named query to modify.

3. Click **Modify**. The **Modify Query** dialog box appears.

4. Make the necessary modifications and then click **OK** to close the **Modify Query** dialog box.

5. Click **OK** on the **Alarm Query** dialog box.

Note: Modifications are not automatically applied to other Distributed Alarm Display objects that are using the alarm query being modified.

To delete an existing named query

1. At run time, right-click the Distributed Alarm Display and then click **Query Favorites**. The **Alarm Query** dialog box appears.

2. In the list of currently defined queries, select the named query to modify.

3. Click **Delete**. When a message appears, click **Yes**.

4. Click **OK** on the **Alarm Query** dialog box.

Note: Deletion are not automatically applied to other Distribute Alarm Display objects that are using the alarm query being deleted.

Controlling the Distributed Alarm Display Object Using Functions and Dotfields

You can control the Distributed Alarm Display object at run time using functions and .dotfields.

For a list of returned error numbers for functions, see *Error Descriptions* on page 387.

Getting or Setting Properties

Properties are accessible through the GetProperty*X*() function, where X is the data type (D for Discrete, I for Integer, and M for Message). For example:

```
GetPropertyM(ControlName.Property, MsgTag)
```

For more information on the GetPropertyX() functions, see "Built-In Functions"in the InTouch® HMI Scripting and Logic Guide.

When you run the script that includes the GetPropertyX() function, the property value is saved to the MsgTag. If multiple rows are selected, the property assigned to MsgTag is the tag value in the first row of the multiple selection.

Acknowledging Alarms

The Distributed Alarm Display object is capable of acknowledging any alarms that it can query (summary display only). The Distributed Alarm Display object includes alarm acknowledgment functions. These functions supplement the .**Ack** dotfield used to acknowledge local alarms and alarm groups. Use these functions to acknowledge all alarms, shown alarms, and selected alarms.

You can also acknowledge alarms by their characteristics. such as group membership, priority, application name, and tag name.

- *almAckAll() Function* on page 346
- *Controlling the Distributed Alarm Display Object Using Functions and Dotfields* on page 345
- *almAckGroup() Function* on page 347
- *almAckPriority() Function* on page 347
- *almAckRecent() Function* on page 348
- *almAckTag() Function* on page 348
- *almAckSelect() Function* on page 349
- *almAckSelectedGroup() Function* on page 349
- *almAckSelectedPriority() Function* on page 350
- *almAckSelectedTag() Function* on page 350

almAckAll() Function

Acknowledges all alarms in a current query, including those not currently shown in the Distributed Alarm Display object in summary mode.

Category

Alarms

Syntax

```
[Result=]almAckAll(ObjectName,Comment);
```

Arguments

ObjectName
The name of the alarm object. For example, AlmObj_1.

Comment
Alarm acknowledgment comment.

Examples

```
MessageTag = "Acknowledge All by " + $Operator;
almAckAll("AlmObj_1",MessageTag);
```

See Also

Ack(), almAckGroup(), almAckTag(), almAckDisplay(), almAckRecent(), almAckSelect(), almAckSelectedGroup(), almAckSelectedPriority(), almAckSelectedTag()

almAckDisplay() Function

Acknowledges only those alarms currently visible in the Distributed Alarm Display object in summary mode.

Category

Alarms

Syntax

```
[Result=]almAckDisplay(ObjectName,Comment);
```

Arguments

ObjectName
The name of the alarm object. For example, AlmObj_1.

Comment
Alarm acknowledgment comment.

Example

```
almAckDisplay("AlmObj_1","Display Acknowledgement");
```

See Also

Ack(), almAckAll(), almAckGroup(), almAckTag(), almAckRecent(), almAckSelect(), almAckSelectedGroup(), almAckSelectedPriority(), almAckSelectedTag()

almAckGroup() Function

Acknowledges all alarms shown in the named Distributed Alarm object that match the specified provider and group name.

Category

Alarms

Syntax

```
[Result=]almAckGroup( “ObjectName”, ApplicationName, GroupName, Comment);
```

Arguments

ObjectName
The name of the alarm object. For example, AlmObj_1.

ApplicationName
The name of the Application for example, \\node1\Intouch

GroupName
The name of the InTouch alarm group, such as $System.

Comment
Alarm acknowledgment comment.

Example

```
MessageTag = “Acknowledge group, Turbines, by ” + $Operator;
almAckGroup(“AlmObj_1”, “\Intouch”, “Turbine”, MessageTag);
```

almAckPriority() Function

Acknowledges all alarms shown in the named Distributed Alarm object as a result of the last query that match the alarm’s application name, alarm group, and priority range.

Category

Alarms

Syntax

```
[Result=]almAckPriority(ObjectName, ApplicationName, GroupName, FromPri, ToPri, Comment);
```

Arguments

ObjectName
The name of the alarm object. For example, AlmObj_1.

ApplicationName
The name of the Application for example, \\node1\Intouch

GroupName
The name of the Group for example, $System

FromPri
Starting number of the alarm priority range. For example, 100.

ToPri
Ending number of the alarm priority range. For example, 900.

Comment
Alarm acknowledgment comment.

Example

```
almAckPriority(“AlmObj_1”, “\\node1\Intouch”, “Turbines”, 10, 100, “Range 10 to 100
acknowledged”);
```

almAckRecent() Function

Acknowledges the most recent alarms that have occurred.

Syntax

```
[Result=]almAckRecent(ObjectName, Comment)
```

Arguments

ObjectName
The name of the alarm object. For example, AlmObj_1.

Comment
Alarm acknowledgment comment.

Example

```
almAckRecent("AlmObj_1",$DateString);
```

almAckTag() Function

Acknowledges all alarms shown in the named Distributed Alarm Display object as a result of the last query. The alarm must match the application name, group name, tag name, and priority range specified by the query.

Category

Alarms

Syntax

```
[Result=]almAckTag("ObjectName", ApplicationName, GroupName, TagName, FromPri, ToPri,
Comment);
```

Arguments

ObjectName
The name of the alarm object. For example, AlmObj_1.

ApplicationName
The name of the application. For example, \\node1\Intouch.

GroupName
The name of the alarm group. For example, $System.

TagName
The name of the tag whose value is in an alarm state.

FromPri
Starting number of the alarm priority range. For example, 100.

ToPri
Ending number of the priority range. For example, 900.

Comment
Alarm acknowledgment comment.

Example

```
almAckTag("AlmObj_1", "\\node1\Intouch", "Turbines", "Valve1", 10, 100, "Acknowledged for
Valve1");
```

See Also

Ack(), almAckAll(), almAckGroup(), almAckDisplay(), almAckRecent(), almAckSelect(), almAckSelectedGroup(), almAckSelectedPriority(), almAckSelectedTag()

almAckSelect() Function

Acknowledges only those alarms selected in the Distributed Alarm Display object in summary mode.

Category

Alarms

Syntax

```
[Result=]almAckSelect(ObjectName,Comment);
```

Arguments

ObjectName
The name of the alarm object. For example, AlmObj_1.

Comment
Alarm acknowledgment comment.

Example

This example acknowledges only those alarms that occurred during the day shift or the night shift.

```
IF ($Hour >= 0 and $Hour < 8) THEN
    AckTag = "Night Shift";
ELSE
    AckTag = "Day Shift";
ENDIF;
almAckSelect ("AlmObj_1",AckTag);
```

See Also

Ack(), almAckAll(), almAckGroup(), almAckTag(), almAckDisplay(), almAckRecent(), almAckSelectedGroup(), almAckSelectedPriority(), almAckSelectedTag()

almAckSelectedGroup() Function

Acknowledges all alarms with same provider and group names that have the same group name as one or more of the alarms that are selected within the named Distributed Alarm Display object.

Category

Alarms

Syntax

```
[Result=]almAckSelectedGroup(ObjectName,Comment);
```

Arguments

ObjectName
The name of the alarm object. For example, AlmObj_1.

Comment
Alarm acknowledgment comment.

Example

```
MessageTag = "Acknowledge selected groups by " + $Operator;
almAckSelectedGroup ("AlmObj_1", MessageTag);
```

See Also

Ack(), almAckAll(), almAckGroup(), almAckTag(), almAckDisplay(), almAckRecent(), almAckSelect(), almAckSelectedPriority(), almAckSelectedTag()

almAckSelectedPriority() Function

Acknowledges all alarms with same provider and group names that have the same priority value as one or more of the alarms that are selected within the named Distributed Alarm Display object. The priorities are calculated from the minimum and maximum priorities of the selected alarm records.

Category

Alarms

Syntax

```
[Result=]almAckSelectedPriority(ObjectName, Comment);
```

Arguments

ObjectName
The name of the alarm object. For example, AlmObj_1.

Comment
Alarm acknowledgment comment.

Example

```
MessageTag = "Acknowledge selected priorities by " + $Operator;
almAckSelectedPriority ("AlmObj_1", MessageTag);
```

See Also

Ack(), almAckAll(), almAckGroup(), almAckTag(), almAckDisplay(), almAckRecent(), almAckSelect(), almAckSelectedGroup(), almAckSelectedTag()

almAckSelectedTag() Function

Acknowledges all alarms that have the same Tagname from the same provider and group name and having the same priority as one or more of the selected alarms within the named Distributed Alarm Display object. This function works only if InTouch is the alarm provider.

Category

Alarms

Syntax

```
[Result=]almAckSelectedTag(ObjectName,Comment);
```

Arguments

ObjectName
The name of the alarm object. For example, AlmObj_1.

Comment
Alarm acknowledgment comment.

Example

```
MessageTag = "Acknowledge selected tagnames by " + $Operator;
almAckSelectedTag ("AlmObj_1", MessageTag);
```

See Also

Ack(), almAckAll(), almAckGroup(), almAckTag(), almAckDisplay(), almAckRecent(), almAckSelect(), almAckSelectedGroup(), almAckSelectedPriority()

Selecting Alarms

You can create scripts to select alarms from a Distributed Alarm Display object. You can select all alarms, only selected alarms, or obtain a count of current alarms.

- *almSelectAll() Function* on page 351
- *almUnselectAll() Function* on page 352
- *almSelectionCount() Function* on page 352
- *almSelectGroup() Function* on page 353
- *almSelectItem() Function* on page 353
- *almSelectPriority() Function* on page 353
- *almSelectTag() Function* on page 354

You can also select specific alarms based upon the data source, alarm priority, and InTouch tags.

almSelectAll() Function

Toggles the selection of all the alarms in a named Distributed Alarm Display object.

Category

Alarms

Syntax

```
[Result=]almSelectAll(ObjectName);
```

Argument

ObjectName
The name of the alarm object. For example, AlmObj_1.

Example

```
If $AccessLevel > 8000 THEN
```

```
    almSelectAll("AlmObj_1");
    almAckSelect("AlmObj_1", "Ack Selected by a Manager");
ENDIF;
```

See Also

almSelectItem(), almSelectGroup(), almSelectPriority(), almSelectTag(), almUnSelectAll()

almUnselectAll() Function

Unselects all selected alarms in a named Distributed Alarm Display object.

Category

Alarms

Syntax

```
[Result=]almUnselectAll(ObjectName);
```

Argument

ObjectName
The name of the alarm object. For example, AlmObj_1.

Example

```
If $AccessLevel == 9999 THEN
    almAckSelect("AlmObj_1", "Comment");{This alarm can be acknowledged by only Administrator}
    ELSE
    almUnselectAll("AlmObj_1");
ENDIF;
```

See Also

almSelectAll(), almSelectItem(), almSelectGroup(), almSelectPriority(), almSelectTag()

almSelectionCount() Function

Returns the number of alarms selected by the operator in the Distributed Alarm Display object.

Category

Alarms

Syntax

```
[Result=]almSelectionCount(ObjectName);
```

Argument

ObjectName
The name of the alarm object. For example, AlmObj_1.

Example

The AlarmCount tag is assigned the number of alarms selected by the operator from the Distributed Alarm Display object.

```
AlarmCount = almSelectionCount("AlmObj_1");
```

almSelectGroup() Function

Toggles the selection of all alarms that are contained by a named Distributed Alarm Display object as a result of the display's last query and where the resultant alarm contains the same alarm group name.

Category

Alarms

Syntax

```
[Result=]almSelectGroup(ObjectName, ApplicationName,GroupName);
```

Argument

ObjectName
The name of the alarm object. For example, AlmObj_1.

ApplicationName
The name of the Application. For example, \\node1\Intouch.

GroupName
The name of the Group. For example, $System.

Example

```
almSelectGroup("AlmObj_1","\InTouch","Turbine");
```

See Also

almSelectAll(), almSelectItem(), almSelectPriority(), almSelectTag(), almUnSelectAll()

almSelectItem() Function

Toggles the selection of the last selected or unselected item in an alarm display object.

Syntax

```
[Result=]almSelectItem(ObjectName);
```

Argument

ObjectName
The name of the alarm object. For example, AlmObj_1.

Example

```
almSelectItem("AlmObj_1");
```

See Also

almSelectAll(), almSelectGroup(), almSelectPriority(), almSelectTag(), almUnSelectAll()

almSelectPriority() Function

Toggles the selection of all alarms in a named Distributed Alarm Display object as a result of the display's last query and where the resultant alarms are within the specified priority range.

Category

Alarms

Syntax

```
[Result=]almSelectPriority( "objectName", ApplicationName, GroupName, FromPri, ToPri );
```

Argument

ObjectName
The name of the alarm object. For example, AlmObj_1.

ApplicationName
The name of the Application. For example, \\node1\Intouch.

GroupName
The name of the Group. For example, $System.

FromPri
Starting priority of alarms. For example, 100 or integer tag.

ToPri
Ending priority of alarms. For example, 900 or integer tag.

Example

```
almSelectPriority("AlmObj_1","\\node1\Intouch", "Turbines",10,100);
```

See Also

almSelectAll(), almSelectItem(), almSelectGroup(), almSelectTag(), almUnSelectAll()

almSelectTag() Function

Toggles the selection of all alarms in a named Distributed Alarm Display object as a result of the display’s last query and given tag name.

Category

Alarms

Syntax

```
[Result=]almSelectTag (ObjectName, ApplicationName, GroupName, TagName, FromPri, ToPri);
```

Arguments

ObjectName
The name of the alarm object. For example, AlmObj_1.

ApplicationName
The name of the Application. For example, \\node1\Intouch.

GroupName
The name of the Group. For example, $System.

TagName
The name of the alarm tag.

FromPri
Starting priority of alarms. For example, 100 or integer tag.

ToPri
Ending priority of alarms. For example, 900 or integer tag.

Example

```
almSelectTag("AlmObj_1","\\node1\Intouch","Turbines","Valve1",10,100);
```

See Also

almSelectAll(), almSelectItem(), almSelectGroup(), almSelectPriority(), almUnSelectAll()

Retrieving Information about a Selected Alarm Record

You can create scripts that return information about selected alarms. Use the following dotfields in your script:

- *.AlarmTime Dotfield* on page 355
- *.AlarmDate Dotfield* on page 356
- *.AlarmName Dotfield* on page 357
- *.AlarmValue Dotfield* on page 357
- *.AlarmClass Dotfield* on page 358
- *.AlarmType Dotfield* on page 359
- *.AlarmState Dotfield* on page 359
- *.AlarmLimit Dotfield* on page 360
- *.AlarmPri Dotfield* on page 361
- *.AlarmGroupSel Dotfield* on page 361
- *.AlarmAccess Dotfield* on page 362
- *.AlarmProv Dotfield* on page 363
- *.AlarmOprName Dotfield* on page 363
- *.AlarmOprNode Dotfield* on page 364
- *.AlarmComment Dotfield* on page 365

.AlarmTime Dotfield

Returns the time when an alarm occurred. The alarm must be selected in Distributed Alarm Display object in summary mode.

Category

Alarms

Usage

```
[ErrorNumber=]GetPropertyM( "ObjectName.AlarmTime",TagName);
```

Parameters

ObjectName
Name of the Distributed Alarm Display object. For example, AlmObj_1.

TagName
Any message tag.

Data Type

String (read-only)

Example

In this example, AlmObj_1 is the name of the Distributed Alarm Display object and **almTime** is a memory message tag.

```
GetPropertyM("AlmObj_1.AlarmTime",almTime);
```

If used in a Touch Pushbutton QuickScript, this statement returns the time when the alarm occurred to the **almTime** tag.

See Also

GetPropertyM(), .AlarmAccess, .AlarmClass, .AlarmComment, .AlarmDate, .AlarmLimit, .AlarmName, .AlarmOprName, .AlarmOprNode, .AlarmPri, .AlarmProv, .AlarmState, .AlarmType, .AlarmValue

.AlarmDate Dotfield

Returns the date associated with a selected alarm. The alarm has to be selected by clicking on the Distributed Alarm Display object in summary mode.

Category

Alarms

Usage

```
[ErrorNumber=]GetPropertyM("ObjectName.AlarmDate",TagName);
```

Parameters

ObjectName
Name of the Distributed Alarm Display object. For example, AlmObj_1.

TagName
Any message tag.

Data Type

String (read-only)

Example

If used in a Touch Pushbutton QuickScript, this statement returns the date to the **almDate** tag.

```
GetPropertyM("AlmObj_1.AlarmDate",almDate);
```

AlmObj_1 is the name of the Distributed Alarm Display object and **almDate** is a memory message tag that retrieves the date for the tag associated with the selected alarm.

See Also

GetPropertyM(), .AlarmAccess, .AlarmClass, .AlarmComment, .AlarmLimit, .AlarmName, .AlarmOprName, .AlarmOprNode, .AlarmPri, .AlarmProv, .AlarmState, .AlarmTime, .AlarmType, .AlarmValue

.AlarmName Dotfield

Returns the name of the tag associated with a selected alarm. The alarm has to be selected by clicking the Distributed Alarm Display object in summary mode.

Category

Alarms

Usage

```
[ErrorNumber=]GetPropertyM("ObjectName.AlarmName",TagName);
```

Parameters

ObjectName
Name of the Distributed Alarm Display object. For example, AlmObj_1.

TagName
Any message tag.

Data Type

String (read-only)

Example

If used in a Touch Pushbutton QuickScript, this statement returns the name of the alarm to **almName**.

```
GetPropertyM("AlmObj_1.AlarmName",almName);
```

Where AlmObj_1 is the name of the Distributed Alarm Display object and **almName** is a memory message tag that retrieves the name of the tag associated with the selected alarm.

See Also

GetPropertyM(), .AlarmAccess, .AlarmClass, .AlarmComment, .AlarmDate, .AlarmLimit, .AlarmOprName, .AlarmOprNode, .AlarmPri, .AlarmProv, .AlarmState, .AlarmTime, .AlarmType, .AlarmValue

.AlarmValue Dotfield

Returns the value of the alarm for the tag associated with the selected alarm. The alarm has to be selected by clicking the Distributed Alarm Display object in summary mode.

Category

Alarms

Usage

```
[ErrorNumber=]GetPropertyM("ObjectName.AlarmValue,TagName);
```

Parameters

ObjectName
Name of the Distributed Alarm Display object. For example, AlmObj_1.

TagName
Any message tag.

Data Type

String (read-only)

Remarks

This function uses a message tag to retrieve the numeric value. This is because the GetProperty functions do not support real numbers. You can use the StringToReal() function to assign the result to a real tag.

Example

If used in a Touch Pushbutton QuickScript, this statement returns the value to **almValue**.

```
GetPropertyM("AlmObj_1.AlarmValue", almValue);
```

Where AlmObj_1 is the name of the Distributed Alarm Display object and **almValue** is a memory message tag containing the alarm value for the tag associated with the selected alarm.

See Also

GetPropertyM(), .AlarmAccess, .AlarmClass, .AlarmComment, .AlarmDate, .AlarmLimit, .AlarmOprName, .AlarmOprNode, .AlarmPri, .AlarmProv, .AlarmState, .AlarmTime, .AlarmType, .AlarmValue

.AlarmClass Dotfield

Returns the class of alarm for the tag associated with a selected alarm. The alarm must be selected from the Distributed Alarm Display object in summary mode.

Category

Alarms

Usage

```
[ErrorNumber=]GetPropertyM("ObjectName.AlarmClass",Tagname);
```

Parameters

ObjectName
Name of the Distributed Alarm Display object. For example, AlmObj_1.

TagName
Any message tag.

Data Type

String (read-only)

Example

The following statement returns the alarm class associated with the selected alarm.

```
GetPropertyM("AlmObj_1.AlarmClass",almClass);
```

AlmObj_1 is the name of the Distributed Alarm Display object and **almClass** is a memory message tag containing the class of alarm for the tag associated with the selected alarm.

If used in a Touch Pushbutton QuickScript, this statement returns the alarm class of the alarm to the **almClass** tag.

See Also

GetPropertyM(), .AlarmAccess, .AlarmComment, .AlarmDate, .AlarmLimit, .AlarmName, .AlarmOprName, .AlarmOprNode, .AlarmPri, .AlarmProv, .AlarmState, .AlarmTime, .AlarmType, .AlarmValue

.AlarmType Dotfield

Returns the alarm type for the tag associated with a selected alarm. The alarm has to be selected by clicking the Distributed Alarm Display object in summary mode.

Category

Alarms

Usage

```
[ErrorNumber=]GetPropertyM("ObjectName.AlarmType",TagName);
```

Parameters

ObjectName
Name of the Distributed Alarm Display object. For example, AlmObj_1.

TagName
Any message tag.

Data Type

String (read-only)

Example

If used in a Touch Pushbutton QuickScript, this statement returns the type of the selected alarm to the **almTyp**e tag when the operator acknowledges the alarm.

```
GetPropertyM("AlmObj_1.AlarmType",almType);
```

Where AlmObj_1 is the name of the Distributed Alarm Display object and **almType** is a memory message tag containing the alarm type for the tag associated with the selected alarm.

See Also

GetPropertyM(), .AlarmAccess, .AlarmClass, .AlarmComment, .AlarmDate, .AlarmLimit, .AlarmName, .AlarmOprName, .AlarmOprNode, .AlarmPri, .AlarmProv, .AlarmState, .AlarmTime, .AlarmValue

.AlarmState Dotfield

Returns the state of the selected alarm. The alarm has to be selected by clicking the Distributed Alarm Display object in summary mode.

Category

Alarms

Usage

```
[ErrorNumber=]GetPropertyM( "ObjectName.AlarmState",TagName);
```

Parameters

ObjectName
Name of the Distributed Alarm Display object. For example, AlmObj_1.

TagName
Any message tag.

Data Type

String (read-only)

Example

If used in a Touch Pushbutton QuickScript, this statement returns the state of the selected alarm to the almState tag.

```
GetPropertyM("AlmObj_1.AlarmState",almState);
```

Where AlmObj_1 is the name of the Distributed Alarm Display object and **almState** is a memory message tag containing the alarm state for the tag associated with the selected alarm.

See Also

GetPropertyM(), .AlarmAccess, .AlarmClass, .AlarmComment, .AlarmDate, .AlarmLimit, .AlarmName, .AlarmOprName, .AlarmOprNode, .AlarmPri, .AlarmProv, .AlarmTime, .AlarmType, .AlarmValue

.AlarmLimit Dotfield

Returns the limit for the tag associated with a selected alarm. The alarm has to be selected by clicking the Distributed Alarm Display object in summary mode.

Category

Alarms

Usage

```
[ErrorNumber=]GetPropertyM ("ObjectName.AlarmLimit",TagName);
```

Parameters

ObjectName
Name of the Distributed Alarm Display object. For example, AlmObj_1.

TagName
Any message tag.

Data Type

String (read-only)

Remarks

This function uses a message tag to retrieve the numeric value. This is because the GetProperty functions do not support real numbers. You can use the StringToReal() function to assign the result to a real tag.

Example

If used in a pushbutton QuickScript, this statement returns the limit of the selected alarm to the almLimit tag.

```
GetPropertyM("AlmObj_1.AlarmLimit",almLimit);
```

Where AlmObj_1 is the name of the Distributed Alarm Display object and **almLimit** is a memory message containing the alarm limit for the tag associated with the selected alarm.

See Also

GetPropertyM(), .AlarmAccess, .AlarmClass, .AlarmComment, .AlarmDate, .AlarmName, .AlarmOprName, .AlarmOprNode, .AlarmPri, .AlarmProv, .AlarmState, .AlarmTime, .AlarmType, .AlarmValue

.AlarmPri Dotfield

Returns the priority (1-999) for the tag associated with a selected alarm. The alarm must be selected by clicking the Distributed Alarm Display object in summary mode.

Category

Alarms

Usage

```
[ErrorNumber=]GetPropertyM("ObjectName.AlarmPri", TagName);
```

Parameters

ObjectName
Name of the Distributed Alarm Display object. For example, AlmObj_1.

TagName
Any message tag.

Data Type

String (read-only)

Example

If used in a Touch Pushbutton QuickScript, this statement returns the alarm priority to the almPrilvl tag.

```
GetPropertyM("AlmObj_1.AlarmPri",almPrilvl);
```

Where AlmObj_1 is the name of the Distributed Alarm Display object and **almPrilvl** is a memory message tag containing the priority level of the tag associated with the selected alarm.

See Also

GetPropertyM(), .AlarmAccess, .AlarmClass, .AlarmComment, .AlarmDate, .AlarmLimit, .AlarmName, .AlarmOprName, .AlarmOprNode, .AlarmProv, .AlarmState, .AlarmTime, .AlarmType, .AlarmValue

.AlarmGroupSel Dotfield

Returns the alarm group of the tag associated with a selected alarm. The alarm has to be selected by clicking on the Distributed Alarm Display object in summary mode.

Category

Alarms

Usage

```
[ErrorNumber=]GetPropertyM( "ObjectName.AlarmGroupSel",TagName);
```

Parameter

ObjectName
Name of the Distributed Alarm Display object. For example, AlmObj_1.

TagName
Any message tag.

Data Type

String (read-only)

Example

If used in a Touch Pushbutton QuickScript, this statement returns the name of the alarm group to the almGroup tag.

```
GetPropertyM("AlmObj_1.AlarmGroupSel",almGroup);
```

Where AlmObj_1 is the name of the Distributed Alarm Display object and **almGroup** is a memory message tag containing the alarm group of the tag associated with the selected alarm.

See Also

GetPropertyM(), .AlarmGroup, .AlarmName

.AlarmAccess Dotfield

Returns the Access Name of the tag associated with a selected alarm. The alarm record must be selected by clicking on the Distributed Alarm Display object in summary mode.

Category

Alarms

Usage

```
GetPropertyM("Objectname.AlarmAccess",TagName);
```

Parameter

ObjectName
Name of the Distributed Alarm Display object. For example, AlmObj_1.

TagName
Any message tag.

Data Type

String (read-only)

Example

If used in a Touch Pushbutton QuickScript, this statement returns the Access Name of the tag associated with the alarm to the almAccess tag.

```
GetPropertyM("AlmObj_1.AlarmAccess",almAccess);
```

Where AlmObj_1 is the name of the Distributed Alarm Display object and **almAccess** is a memory message tag containing the Access Name of the tag associated with the selected alarm.

See Also

GetPropertyM(), .AlarmClass, .AlarmComment, .AlarmDate, .AlarmLimit, .AlarmName, .AlarmOprName, .AlarmOprNode, .AlarmPri, .AlarmProv, .AlarmState, .AlarmTime, .AlarmType

.AlarmProv Dotfield

Returns the alarm provider for the tag associated with a selected alarm. The alarm has to be selected by clicking the Distributed Alarm Display object in summary mode.

Category

Alarms

Usage

```
[ErrorNumber=]GetPropertyM( "ObjectName.AlarmProv",TagName);
```

Parameter

ObjectName
Name of the Distributed Alarm Display object. For example, AlmObj_1.

TagName
Any message tag.

Data Type

String (read-only)

Example

If used in a Touch Pushbutton QuickScript, this statement returns the provider name to the almProv tag.

```
GetPropertyM("AlmObj_1.AlarmProv", almProv);
```

AlmObj_1 is the name of the Distributed Alarm Display object and **almProv** is a memory message tag containing the name of the provider for the tag associated with the selected alarm.

See Also

GetPropertyM(), .AlarmAccess, .AlarmClass, .AlarmComment, .AlarmDate, .AlarmLimit, .AlarmName, .AlarmOprName, .AlarmOprNode, .AlarmPri, .AlarmState, .AlarmTime, .AlarmType, .AlarmValue

.AlarmOprName Dotfield

Returns the name of the logged on operator who acknowledged the selected alarm. The alarm has to be selected by clicking the Distributed Alarm Display object in summary mode.

Category

Alarms

Usage

```
[ErrorNumber=]GetPropertyM( "ObjectName.AlarmOprName",TagName);
```

Parameter

ObjectName
Name of the Distributed Alarm Display object. For example, AlmObj_1.

TagName
Any message tag.

Data Type

String (read-only)

Example

```
GetPropertyM("AlmObj_1.AlarmOprName",almOprName);
```

Where AlmObj_1 is the name of the Distributed Alarm Display object and **almOprName** is a memory message tag containing the name of the operator responding to the alarm associated with the tag.

If used in a Touch Pushbutton QuickScript, this statement returns the name of the operator to the almOprName tag.

See Also

GetPropertyM(), .AlarmAccess, .AlarmClass, .AlarmComment, .AlarmDate, .AlarmLimit, .AlarmName, .AlarmOprNode, .AlarmPri, .AlarmProv, .AlarmState, .AlarmTime, .AlarmType, .AlarmValue

.AlarmOprNode Dotfield

Returns the operator node for the tag associated with a selected alarm. The alarm must be selected by clicking the Distributed Alarm Display object in summary mode.

When an alarm is acknowledged in a Terminal Services environment, the Operator Node is the name of the client machine that the respective operator established the Terminal Services session from. If the node name cannot be retrieved, the node's IP address is used instead.

Category

Alarms

Usage

```
[ErrorNumber=]GetPropertyM( "ObjectName.AlarmOprNode",TagName);
```

Parameter

ObjectName
Name of the Distributed Alarm Display object. For example, AlmObj_1.

TagName
Any message tag.

Data Type

String (read-only)

Example

```
GetPropertyM("AlmObj_1.AlarmOprNode",almOprNode);
```

Where AlmObj_1 is the name of the Distributed Alarm Display object and **almOprNode** is a memory message tag containing the name of the operator's node for the tag associated with the selected alarm.

If used in a Touch Pushbutton QuickScript, this statement returns the operator’s node to the almOprNode tag.

See Also

GetPropertyM(), .AlarmAccess, .AlarmClass, .AlarmComment, .AlarmDate, .AlarmLimit, .AlarmName, .AlarmOprName, .AlarmPri, .AlarmProv, .AlarmState, .AlarmTime, .AlarmType, .AlarmValue

.AlarmComment Dotfield

Returns the alarm comment, which is a read/write text string that describes the alarm, not the tag. By default, the comment is empty in a new application.

However, when an old InTouch application is converted to InTouch version 7.11 or later, the tag comment is copied to the .AlarmComment dotfield for backward compatibility.

Category

Alarms

Usage

```
[ErrorNumber=]GetPropertyM( "ObjectName.AlarmComment",TagName);
```

Parameter

ObjectName
Name of the Distributed Alarm Display object. For example, AlmObj_1.

TagName
Any message tag.

Data Type

String (read-only)

Example

The following example returns the alarm comment for a tag selected in the AlmObj_1 Distributed Alarm Display object and places it in the almComment tag :

```
GetPropertyM("AlmObj_1.AlarmComment", almComment);
```

See Also

GetPropertyM(), .AlarmAccess, .AlarmClass, .AlarmDate, .AlarmLimit, .AlarmName, .AlarmOprName, .AlarmOprNode, .AlarmPri, .AlarmProv, .AlarmState, .AlarmTime, .AlarmType, .AlarmValue

Setting the Alarm Query

Use the following query functions to retrieve records from the alarm memory.

- *almDefQuery() Function* on page 365
- *almQuery() Function* on page 366
- *almSetQueryByName() Function* on page 367

almDefQuery() Function

Performs a query using default properties to update a named Distributed Alarm Display object.

Category

Alarms

Syntax

```
[Result=]almDefQuery(ObjectName);
```

Argument

ObjectName
The name of the Distributed Alarm Display object. For example, AlmObj_1.

Remarks

The default query properties are specified while developing the Distributed Alarm Display object in WindowMaker.

Example

```
almDefQuery("AlmObj_1");
```

See Also

almQuery(), almSetQueryByName()

almQuery() Function

Performs a query to update a named Distributed Alarm Display object and uses the specified parameters.

Category

Alarms

Syntax

```
[Result=]almQuery(ObjectName,AlarmList,FromPri,ToPri,State,Type);
```

Arguments

ObjectName
The name of the alarm object. For example, AlmObj_1.

AlarmList
Sets the Alarm Query/Name Manager alias to perform the query against, for example, "\intouch!$System" or a Message tag.

FromPri
Starting priority of alarms to show. For example, 100 or integer tag.

ToPri
Ending priority of alarms to show. For example, 900 or integer tag.

State
Specifies type of alarms to show. For example, "UnAck" or Message tag. Valid states are All, UnAck or Ack.

Type
The type of alarm records that appear in the updated display:
"Hist" = Historical alarms
"Summ" = Summary alarms

Example

This statement retrieves all historical alarms specified in MyAlarmListGroup with a priority of 500 to 600. The alarms appear in the AlmObj_1 alarm display.

```
almQuery("AlmObj_1","MyAlarmListGroup",500,600,"All","Hist");
```

In this example, MyAlarmListGroup is an alarm list configured from the Name Manager setup.

See Also

almDefQuery(), almSetQueryByName()

almSetQueryByName() Function

Starts a new alarm query for the named instance of the Distributed Alarm Display object using the parameters from a user-defined query favorite file.

Category

Alarms

Syntax

```
[Result=]almSetQueryByName(ObjectName, QueryName);
```

Arguments

ObjectName
The name of the alarm object. For example, AlmObj_1.

QueryName
The name of the query created by using Query Favorites.

Remarks

This is a query for the particular instance of the Distributed Alarm Display object. There may be several such displays on the screen, each with its own query.

Example

This example starts a new query using parameters from the query named "Turbine Queries."

```
almSetQueryByName("AlmObj_1","Turbine Queries");
```

See Also

almQuery(), almDefQuery()

Checking the Current Query Properties

Use the following dotfields to return the status of alarm memory queries.

- *.AlarmGroup Dotfield* on page 368
- *.QueryType Dotfield* on page 368
- *.QueryStateDotfield* on page 369
- *.Successful Dotfield* on page 370
- *.PriFrom Dotfield* on page 370

- *.PriTo Dotfield* on page 371

.AlarmGroup Dotfield

Contains the current query used to populate a Distributed Alarm Display object.

Category

Alarms

Usage

```
[ErrorNumber=]GetPropertyM( "ObjectName.AlarmGroup",TagName);
```

Arguments

ObjectName
The name of the alarm object. For example, AlmObj_1.

TagName
Any message tag.

Remarks

This read-only dotfield contains the current alarm query used by the named Distributed Alarm Display object. This query can be a list of alarm groups or direct alarm provider references.

Data Type

String (read-only)

Example

This statement returns the current alarm query used by the AlmObj_1 Distributed Alarm Display object to the **CurrentQuery** tag:

```
GetPropertyM("AlmObj_1.AlarmGroup",CurrentQuery);
```

See Also

GetPropertyM(), .AlarmGroupSel, .AlarmName

.QueryType Dotfield

Shows the current type of alarm query.

Category

Alarms

Usage

```
[ErrorNumber=]GetPropertyI( "ObjectName.QueryType",TagName);
```

Arguments

ObjectName
The name of the alarm object. For example, AlmObj_1.

TagName
Any integer tag

Remarks

This read-only dotfield contains the current query type used by a named Distributed Alarm Display object.

Data Type

Integer (read-only)

Valid Values

1 = Historical

2 = Summary

Example

The following statement returns the current query type of the AlmObj_1 Distributed Alarm Display object to the AlmQueryType tag:

```
GetPropertyI("AlmObj_1.QueryType",AlmQueryType);
```

See Also

GetPropertyI(), .QueryState

.QueryStateDotfield

Shows the current alarm state query filter.

Category

Alarms

Usage

```
[ErrorNumber=]GetPropertyI( "ObjectName.QueryState",TagName);
```

Arguments

ObjectName
The name of the alarm object. For example, AlmObj_1.

TagName
Any integer tag

Remarks

This read-only dotfield contains the current query filter used by a named Distributed Alarm Display object.

Data Type

Integer (read-only)

Valid Values

0 = All

1 = Unacknowledged

2 = Acknowledged

Example

The following statement returns the current query filter of the AlmObj_1 Distributed Alarm Display object to the AlmQueryState tag:

```
GetPropertyI("AlmObj_1.QueryState", AlmQueryState);
```

See Also

GetPropertyI(), .QueryType

.Successful Dotfield

Indicates whether the current query is successful or not.

Category

Alarms

Usage

```
[ErrorNumber=]GetPropertyD( "ObjectName.Successful",TagName);
```

Arguments

ObjectName
The name of the alarm object. For example, AlmObj_1.

TagName
A discrete tag that holds the property value when the function is processed.

Remarks

This read-only dotfield contains the state of the last query used by a named Distributed Alarm Display object.

Data Type

Discrete (read-only)

Valid Values

0 = Error in query

1 = Successful query

Example

The following statement returns the status of the last query of the AlmObj_1 Distributed Alarm Display object to the AlmFlag tag:

```
GetPropertyD("AlmObj_1.Successful",AlmFlag);
```

See Also

GetPropertyD()

.PriFrom Dotfield

Returns the minimum value of an alarm priority range used by the current query.

Category

Alarms

Usage

```
[ErrorNumber=]GetPropertyI("ObjectName.PriFrom", Tagname);
```

Parameters

ObjectName
Name of the Distributed Alarm Display object. For example, AlmObj_1.

TagName
Any integer tag.

Data Type

Integer (read-only)

Example

The following statement returns the minimum priority value of the query used by Distributed Alarm Display object AlmObj_1to the **MinPri** integer tag:

```
GetPropertyI("AlmObj_1.PriFrom",MinPri);
```

See Also

GetPropertyI(), .PriTo, .AlarmPri

.PriTo Dotfield

Contains the maximum value of the alarm priority range used by the current query.

Usage

```
[ErrorNumber=]GetPropertyI("ObjectName.PriTo", Tagname);
```

Parameter

ObjectName
Name of the Distributed Alarm Display object. For example, AlmObj_1.

TagName
An integer tag that holds the property value when the function is processed.

Data Type

Integer (read-only)

Example

The following statement returns the maximum priority value of the query used by AlmObj_1 Distributed Alarm Display object to the MaxPri integer tag:

```
GetPropertyI("AlmObj_1.PriTo",MaxPri);
```

See Also

GetPropertyI(), .PriFrom, .AlarmPri

Checking for Updates to the Distributed Alarm Display Object

Use the following dotfields to find out whether the Distributed Alarm Display object contains all current alarms or if there are pending updates.

- *.ListChanged Dotfield* on page 372
- *.PendingUpdates Dotfield* on page 372

.ListChanged Dotfield

Indicates whether there are any new alarms or updates for the Distributed Alarm Display object.

Category

Alarms

Usage

```
[ErrorNumber=]GetPropertyD("ObjectName.ListChanged",TagName);
```

Arguments

ObjectName
The name of the alarm object. For example, AlmObj_1.

TagName
A discrete tag that holds the property value when the function is processed.

Remarks

This read-only dotfield contains the status about whether there have been any changes that need to be updated in the Distributed Alarm Display object. This property is automatically reset on reading the property.

Data Type

Discrete (read-only)

Valid Values

0 = No new alarms or updates for the display object

1 = New updates for the display object

Example

```
The following statement returns the status of any new alarms or updates for the AlmObj_1
Distributed Alarm Display object to the AlmDispStat tag:
GetPropertyD("AlmObj_1.ListChanged",AlmDispStat);
```

See Also

GetPropertyD()

.PendingUpdates Dotfield

Indicates the number of pending updates to the Distributed Alarm Display object. There are pending updates usually when the display is frozen and new alarm records are created. These do not show, but the pending updates count is increased.

Category

Alarms

Usage

```
[ErrorMessage=]GetPropertyI( "ObjectName.PendingUpdates", TagName);
```

Arguments

ObjectName
The name of the alarm object. For example, AlmObj_1.

TagName
An integer tag that holds the property value when the function is processed.

Remarks

This read-only dotfield contains the number of pending updates for a named Distributed Alarm Display object. Any value greater than zero indicates the Distributed Alarm Display object has new alarm data. This value is reset each time the object is refreshed.

Data Type

Integer (read-only)

Example

The following statement returns an integer 1 or greater if there are any pending updates for the AlmObj_1 Distributed Alarm Display object to the AlarmPendingUpdates tag:

```
GetPropertyI( "AlmObj_1.PendingUpdates",AlarmPendingUpdates);
```

See Also

GetPropertyI()

Suppressing Alarms

The Distributed Alarm Display object can suppress one or more alarms at an alarm consumer that match exclusion criteria. If an alarm matches the exclusion criteria, it does not appear in the instance of the display.

You can use QuickScript functions to suppress alarms.

- *almSuppressAll() Function* on page 374
- *almUnsuppressAll() Function* on page 374
- *almSuppressDisplay() Function* on page 374
- *almSuppressGroup() Function* on page 375
- *almSuppressPriority() Function* on page 375
- *almSuppressTag() Function* on page 376
- *almSuppressSelected() Function* on page 377
- *almSuppressSelectedGroup() Function* on page 377
- *almSuppressSelectedPriority() Function* on page 378
- *almSuppressSelectedTag() Function* on page 378
- *almSuppressRetain() Function* on page 379
- *.SuppressRetain Dotfield* on page 379

almSuppressAll() Function

Suppresses the showing of all current and future instances of the alarms in the current query, including those not currently shown in the Distributed Alarm Display object in summary mode.

Syntax

```
[Result=] almSuppressAll(ObjectName);
```

Argument

ObjectName
The name of the alarm object. For example, AlmObj_1.

Remarks

This function works like almAckAll(), identifying which alarms to suppress by identifying all alarms that you would see if you looked at the display and scrolled up and down to look at them all.

Example

```
almSuppressAll("AlmObj_1");
```

See Also

almSuppressGroup(), almSuppressTag(), almSuppressDisplay(), almSuppressPriority(), almSuppressRetain(), almSuppressSelected(), almSuppressSelectedGroup(), almSuppressSelectedPriority(), almSuppressSelectedTag(), almUnSuppressAll()

almUnsuppressAll() Function

Clears all suppressed alarms.

Syntax

```
[Result=] almUnSuppressAll(ObjectName);
```

Argument

ObjectName
The name of the alarm object. For example, AlmObj_1.

Example

```
almUnSuppressAll("AlmObj_1");
```

See Also

almSuppressAll(), almSuppressGroup(), almSuppressTag(), almSuppressDisplay(), almSuppressPriority(), almSuppressRetain(), almSuppressSelected(), almSuppressSelectedGroup(), almSuppressSelectedPriority(), almSuppressSelectedTag()

almSuppressDisplay() Function

Suppresses the showing of current and future occurrences of alarms visible in the Distributed Alarm Display object in summary mode.

Syntax

```
[Result=]almSuppressDisplay(ObjectName);
```

Argument

ObjectName
The name of the alarm object. For example, AlmObj_1.

Remarks

This function works like the corresponding almAckDisplay() function, identifying which alarms to suppress by identifying all alarms that are currently shown.

Example

```
almSuppressDisplay("AlmObj_1");
```

almSuppressGroup() Function

Suppresses the showing of current and future occurrences of any alarm with the specified provider and group name.

Syntax

```
[Result=]almSuppressGroup(ObjectName, ApplicationName,GroupName);
```

Argument

ObjectName
The name of the alarm object. For example, AlmObj_1.

ApplicationName
The name of the application. For example, \\node1\InTouch

GroupName
The name of the alarm group. For example, $System

Example

```
almSuppressGroup( "AlmObj_1","\InTouch","Turbines");
```

See Also

almSuppressAll(), almSuppressTag(), almSuppressDisplay(), almSuppressPriority(), almSuppressRetain(), almSuppressSelected(), almSuppressSelectedGroup(), almSuppressSelectedPriority(), almSuppressSelectedTag(), almUnSuppressAll()

almSuppressPriority() Function

Suppresses the showing of current and future occurrences of any alarm of the specified priority range having the same provider name and Group name.

Syntax

```
[Result=]almSuppressPriority(ObjectName, ApplicationName, GroupName, FromPri, ToPri);
```

Arguments

ObjectName
The name of the alarm object. For example, AlmObj_1.

ApplicationName
The name of the application. For example, \\node1\InTouch

GroupName
The name of the Group. For example, $System

FromPri
Starting priority of alarms. For example, 100 or Integer tag.

ToPri
Ending priority of alarms. For example, 900 or Integer tag.

Example

```
almSuppressPriority("AlmObj_1","\\node1\Intouch", "Turbines",10,100);
```

See Also

almSuppressAll(), almSuppressGroup(), almSuppressTag(), almSuppressDisplay(), almSuppressRetain(), almSuppressSelected(), almSuppressSelectedGroup(), almSuppressSelectedPriority(), almSuppressSelectedTag(), almUnSuppressAll()

almSuppressTag() Function

Suppresses the showing of current and future occurrences of any alarm that belongs to the specified tagname having the same provider name, group name, and priority range.

Category

Alarms

Syntax

```
[Result=]almSuppressTag(ObjectName, ApplicationName, GroupName, TagName, FromPri, ToPri, AlarmClass, AlarmType);
```

Arguments

ObjectName
The name of the alarm object. For example, AlmObj_1.

ApplicationName
The name of the application. For example, \\node1\InTouch

GroupName
The name of the Group. For example, $System

TagName
The name of the alarm tag.

FromPri
Starting priority of alarms. For example, 100 or Integer tag.

ToPri
Ending priority of alarms. For example, 900 or Integer tag.

AlarmClass
The class of the alarm. For example, "Value."

AlarmType
The alarm type of the alarm. For example, "HiHi."

Example

```
almSuppressTag("AlmObj_1","\\node1\Intouch", "Turbines","Valve1",10,100,"Value","LoLo");
```

See Also

almSuppressAll(), almSuppressGroup(), almSuppressDisplay(), almSuppressPriority(), almSuppressRetain(), almSuppressSelected(), almSuppressSelectedGroup(), almSuppressSelectedPriority(), almSuppressSelectedTag(), almUnSuppressAll()

almSuppressSelected() Function

Suppresses the showing of current and future occurrences of the alarms selected in the Distributed Alarm Display object in summary mode.

Category

Alarms

Syntax

```
[Result=]almSuppressSelected(ObjectName);
```

Arguments

ObjectName
The name of the alarm object. For example, AlmObj_1.

Remarks

This functions works like the **almAckSelect()** function, identifying the alarms by the ones selected in the display object.

Example

```
almSuppressSelected("AlmObj_1");
```

See Also

almSuppressAll(), almSuppressGroup(), almSuppressTag(), almSuppressDisplay(), almSuppressPriority(), almSuppressSelectedGroup(), almSuppressSelectedPriority(), almSuppressSelectedTag(), almUnSuppressAll()

almSuppressSelectedGroup() Function

Suppresses the showing of current and future occurrences of the alarms that belong to the same groups of one or more selected alarms having the same provider name within the named Distributed Alarm Display object.

Category

Alarms

Syntax

```
[Result=]almSuppressSelectedGroup(ObjectName);
```

Arguments

ObjectName
The name of the alarm object. For example, AlmObj_1.

Remarks

This functions works like the almAckSelectedGroup() function, identifying the alarms that are selected, then identifying the groups to which they belong, and suppressing future occurrences of the alarms from those groups.

Example

```
almSuppressSelectedGroup("AlmObj_1");
```

See Also

almSuppressAll(), almSuppressGroup(), almSuppressTag(), almSuppressDisplay(), almSuppressSelected(), almSuppressSelectedPriority(), almSuppressSelectedTag()

almSuppressSelectedPriority() Function

Suppresses the showing of current and future occurrences of the alarms that belong to the same priority of one or more selected alarms having the same provider name and Group tag within the named Distributed Alarm Display object.

Category

Alarms

Syntax

```
[Result=]almSuppressSelectedPriority(ObjectName);
```

Arguments

ObjectName
The name of the alarm object. For example, AlmObj_1.

Remarks

The priorities are calculated from the minimum and maximum of the selected alarm records.

This function works like the almAckSelectedPriority() function, identifying the alarms selected in the display, then identifying the corresponding priorities of those alarms, and suppressing future occurrences of alarms with the same priorities.

Example

```
almSuppressSelectedPriority("AlmObj_1");
```

See Also

almSuppressAll(), almSuppressGroup(), almSuppressTagName(), almSuppressDisplay(), almSuppressSelected(), almSuppressSelectedGroup(), almSuppressSelectedTag(), almAckSelectedPriority()

almSuppressSelectedTag() Function

Suppresses the showing of current and future occurrences of any alarm that belongs to the same Tagname name of one or more selected alarms having the same provider name, group name, and priority range.

Category

Alarms

Syntax

```
[Result=]almSuppressSelectedTag(ObjectName);
```

Arguments

ObjectName
The name of the alarm object. For example, AlmObj_1.

Example

```
almSuppressSelectedTag("AlmObj_1");
```

See Also

almSuppressAll(), almSuppressGroup(), almSuppressTag(), almSuppressDisplay(), almSuppressSelectedAlarm(), almSuppressSelectedGroup(), almSuppressSelectedPriority(), almAckSelectedTag(), almUnSuppressAll()

almSuppressRetain() Function

Suppresses all alarms raised by subsequent queries.

Category

Alarms

Syntax

```
[Result=]almSuppressRetain(ObjectName,SuppressionRetainFlag);
```

Arguments

ObjectName
The name of the alarm object. For example, AlmObj_1.

SuppressionRetainFlag
Any discrete or analog tag, 0, or non-zero value. TRUE if suppression information is retained for following queries, FALSE otherwise.

Remarks

If the flag is 0 when the alarm query is changed, the suppression filters are removed.

Example

```
almSuppressRetain("AlmObj_1", 0);
```

See Also

almSuppressAll(), almSuppressGroup(), almSuppressTag(), almSuppressDisplay(), almSuppressPriority(), almSuppressSelected(), almSuppressSelectedGroup(), almSuppressSelectedPriority(), almSuppressSelectedTag(), almUnSuppressAll()

.SuppressRetain Dotfield

Reads/writes the status of the feature that retains the suppression for the Distributed Alarm Display object.

Category

Alarms

Usage

```
[ErrorNumber=]GetPropertyD( "ObjectName.SuppressRetain",TagName);
[ErrorNumber=]SetPropertyD( "ObjectName.SuppressRetain",TagName);
```

Parameters

ObjectName
Name of the Distributed Alarm Display object. For example, AlmObj_1.

Tagname
A discrete tag that holds the property value when the script is processed.

Data Type

Discrete (read-write)

Valid Values

0 = Retain Off

1 = Retain On

Example(s)

The following statement sets the status of suppression retainer for the "AlmObj_1" from the SupRtn discrete tag:

```
SetPropertyD("AlmObj_1.SuppressRetain", SupRtn);
```

See Also

GetPropertyD(), SetProperty()

Scrolling the Alarm Display

Use the following function and dotfields to scroll the alarm list within the Distributed Alarm Display object vertically or horizontally. You can also freeze the display.

- *almMoveWindow() Function* on page 380
- *.Freeze Dotfield* on page 381
- *.PrevPage Dotfield* on page 382
- *.NextPage Dotfield* on page 382

almMoveWindow() Function

Scrolls the alarm list of the Distributed Alarm Display object vertically or horizontally.

Category

Alarms

Syntax

```
[Result=]almMoveWindow(ObjectName,Option,Repeat);
```

Arguments

ObjectName
The name of the alarm object. For example, AlmObj_1.

Option
The type of scrolling action to perform:

Type	Description
LineDn	One line down.
LineUp	One line up.
PageDn	One page down.
PageUp	One page up.
Top	To the top of the list.
Bottom	To the bottom of the list.
PageRt	One page to the right.
PageLf	One page to the left.
Right	To the end of the list (right side).
Left	To the beginning of the list (left side).

Repeat
The number of times this operation should be repeated.

Example

```
almMoveWindow("AlmObj_1", "Bottom", 0);
almMoveWindow("AlmObj_1", "LineDn", 3);
almMoveWindow("AlmObj_1", "PageUp", 0);
```

.Freeze Dotfield

The **.Freeze** dotfield reads the freeze status or freezes/unfreezes the Distributed Alarm Display object.

Category

Alarms

Usage

```
[ErrorNumber=]GetPropertyD("ObjectName.Freeze", TagName);
[ErrorNumber=]SetPropertyD("ObjectName.Freeze", TagName);
```

Arguments

ObjectName
The name of the alarm object. For example, AlmObj_1.

TagName
A discrete tag that holds the property value when the function is processed.

Remarks

A read-write dotfield that contains or changes the freeze status of a Distributed Alarm Display object. When the alarm display object is frozen, the shown alarms cannot be updated nor can new alarms be added. Freeze has no effect on whether the alarms flash or not.

Data Type

Discrete (read-write)

Valid Values

0 = Freeze OFF

1 = Freeze ON

Example

The following statement sets the Freeze property for the "AlmObj_1" from the AlmFreeze discrete tag.

```
SetPropertyD("AlmObj_1.Freeze",AlmFreeze);
```

See Also

GetPropertyD(), SetPropertyD()

.PrevPage Dotfield

Scrolls the Distributed Alarm Display object one page (one screen full of alarms) up.

Category

Alarms

Usage

```
[ErrorNumber=]SetPropertyD("ObjectName.PrevPage",0);
```

Arguments

ObjectName
The name of the alarm object. For example, AlmObj_1.

Remarks

When this property is set, the Distributed Alarm Display object shows the previous page. After the previous page is shown, the variable is automatically set to 1, unless the top of the list has been reached. In this case, the value remains 0.

Data Type

Discrete (read/write)

See Also

GetPropertyD(), SetPropertyD(), .NextPage, .PageNum, .TotalPages

.NextPage Dotfield

Scrolls the Distributed Alarm Display object one page (one screen full of alarms) down.

Category

Alarms

Usage

```
[ErrorNumber=]SetPropertyD("ObjectName.NextPage",0);
```

Arguments

ObjectName
The name of the alarm object. For example, AlmObj_1.

Remarks

When this property is set, the Distributed Alarm Display object shows the next page. After the next page is shown, the variable is automatically set to 1, unless the bottom of the list has been reached. In this case, the value remains 0.

Data Type

Discrete (read/write)

See Also

GetPropertyD(), SetPropertyD(), .PrevPage, .PageNum, .TotalPages

Showing Alarm Statistics and Counts

Use the following functions and dotfields to show statistical information about the current Distributed Alarm Display object.

- *almShowStats() Function* on page 383
- *.PageNum Dotfield* on page 384
- *.TotalPages Dotfield* on page 384
- *.NumAlarms Dotfield* on page 385
- *.ProvidersReq Dotfield* on page 386
- *.ProvidersRet Dotfield* on page 386

almShowStats() Function

Shows the **Alarm Statistics** dialog box of the specified Distributed Alarm Display object.

Category

Alarms

Syntax

```
[Result=]almShowStats(ObjectName);
```

Argument

ObjectName
The name of the alarm object. For example, AlmObj_1.

Example

```
almShowStats("AlmObj_1");
```

.PageNum Dotfield

Contains the current page number shown in the alarm object.

Category

Alarms

Syntax

```
[ErrorNumber=]GetPropertyI("ObjectName.PageNum",TagName);
```

Parameters

ObjectName
Name of the Distributed Alarm Display object. For example, AlmObj_1.

TagName
An integer tag that holds the number of the page currently shown from the Distributed Alarm Display object.

Remarks

This read-only dotfield returns the number of the currently shown page in a named Distributed Alarm Display object.

Data Type

Integer (read-only)

Example

The following statement returns the number of the page currently shown from the AlmObj_1 Distributed Alarm Display object to the **AlarmPage** integer tag:

```
GetPropertyI("AlmObj_1.PageNum",AlarmPage);
```

See Also

GetPropertyI(), .NextPage, .PrevPage, .TotalPages

.TotalPages Dotfield

Contains the total number of pages in the Distributed Alarm Display object.

Category

Alarms

Syntax

```
[ErrorNum=]GetPropertyI("ObjectName.TotalPages", TagName);
```

Parameters

ObjectName
Name of the Distributed Alarm Display object. For example, AlmObj_1.

TagName
An integer tag that retrieves the total number of alarm pages contained in the named Distributed Alarm Display object.

Remarks

This dotfield returns the total number of alarm pages contained in a named Distributed Alarm Display object. One page equals to all alarms shown in the object on the screen at any given time.

Data Type

Integer (read-only)

Example

The following statement returns the total number of pages contained in the AlmObj_1 Distributed Alarm Display object to the Alm**TotalPages** integer tag:

```
GetPropertyI( "AlmObj_1.TotalPages",AlmTotalPages);
```

See Also

GetPropertyI(), NextPage, PrevPage, PageNum

.NumAlarms Dotfield

Contains the number of alarms within a Distributed Alarm Display object.

Category

Alarms

Syntax

```
[ErrorNum=]GetPropertyI("ObjectName.NumAlarms", Tagname);
```

Parameters

ObjectName
Name of the Distributed Alarm Display object. For example, AlmObj_1.

TagName
An integer tag that holds the current number of alarms registered in a named Distributed Alarm Display object. This includes not only those alarms shown, but all alarms registered.

Remarks

This read-only dotfield returns the total number of alarms within a Distributed Alarm Display object.

Data Type

Integer (read-only)

Example

The following statement returns the current number of alarms used by the AlmObj_1 Distributed Alarm Display object to the **AlarmCount** integer tag:

```
GetPropertyI("AlmObj_1.NumAlarms",AlarmCount);
```

See Also

GetPropertyI()

.ProvidersReq Dotfield

Contains the number of alarm providers required by the current query used by a named Distributed Alarm Display object.

Category

Alarms

Syntax

```
[ErrorNumber=]GetPropertyI( "ObjectName.ProvidersReq",TagName);
```

Parameters

ObjectName
Name of the Distributed Alarm Display object. For example, AlmObj_1.

TagName
An integer tag that holds the current number of alarm providers registered in a named Distributed Alarm Display object. This includes not only those alarms shown, but all alarms registered.

Data Type

Integer (read-only)

Example

The following statement returns the number of alarm providers required by the current query used by Distributed Alarm Display object "AlmObj_1". This value is written to the TotalProv integer tag:

```
GetPropertyI("AlmObj_1.ProvidersReq",TotalProv);
```

See Also

GetPropertyI(), .ProvidersRet

.ProvidersRet Dotfield

Contains the number of alarm providers returned by the current query used by a named Distributed Alarm Display object.

Category

Alarms

Usage

```
[ErrorNumber=]GetPropertyI ("ObjectName.ProvidersRet",TagName);
```

Parameters

ObjectName
Name of the Distributed Alarm Display object. For example, AlmObj_1.

TagName
An integer tag that holds the number of alarm providers that have successfully returned their alarms to the named Distributed Alarm Display object.

Remarks

This read-only dotfield contains the number of alarm providers returned by the current query used by a named Distributed Alarm Display object.

Data Type

Integer (read-only)

Example

The following statement returns the number of alarm providers that have successfully returned their alarms to the AlmObj_1 Distributed Alarm Display object . This value is written to the **RetProv** integer tag:

```
GetPropertyI("AlmObj_1.ProvidersRet",RetProv);
```

See Also

GetPropertyI(), .ProvidersReq

Error Descriptions

The following table describes the error numbers. If a number is returned that is not in this table, the error is an unknown error.

Error Number	Description
0	Success
-1	General failure
-2	Insufficient memory available
-3	Property is read-only
-4	Specified item already present
-5	Object name unknown
-6	Property name unknown

Appendix B

Migrating from Legacy Alarm Systems

You can migrate your applications built using the Standard Alarm System or AlarmSuite.

About Migrating from Legacy Alarm Systems

You can migrate your applications built using the Standard Alarm System or AlarmSuite.

Migrating from the Standard Alarm System to the Distributed Alarm System

When you migrate a Standard Alarm system to the Distributed Alarm system, all of the Standard Alarm Displays in the master/slave application are migrated to Distributed Alarm Display objects.

Colors, fonts, the expressions, and the alarm query settings are not migrated. The new Distributed Alarm Display object has the following default query, where node name is the name of the master node:

```
\\nodename\intouch!$system
```

The acknowledgement and alarm status dotfields continue to work as before. Depending if the I/O tag was configured for NetDDE or SuiteLink, you may need to enable NetDDE. However, you may decide you no longer need separate controls for issuing acknowledgements, as the alarms can now be acknowledged using the Distributed Alarm Display object.

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