

# Technical Document

## **Alarms Guide**

**August 18, 2015**

niagara<sup>4</sup>

# Alarms Guide

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## **About this guide**

This guide explains how to set up, respond to, and manage the alarms the system generates when a point enters an alarm condition.

## **Document change log**

Initial release document: August 18, 2015.

## **Related documents**

Following is a list of related guides:

- *Getting Started with Niagara*



# Chapter 1 About alarms

## Topics covered in this chapter

- ◆ Alarm services
- ◆ Alarm state
- ◆ Alarm instructions
- ◆ Alarm notes
- ◆ Alarm escalation

Alarms notify people that a device point has met a set of predefined conditions.

An alarm can be generated for these reasons:

- **Offnormal:** a value is outside its appropriate or expected range.  
For example, the normal operating temperature range of a device may be 70 to 100 degrees Fahrenheit. The point's out-of-range property generates an alarm if the temperature exceeds the upper limit or goes below the lower limit of this range.
- **Alert:** regular equipment maintenance or some other task is due to be performed.  
For example, a motor may require lubrication every 400 hours of operation (this is not an out-of-range condition). Using the alarming function, you can configure an extension with a control point that monitors accumulated device run-time and notifies an operator via email at or before the accumulated time reaches 400 hours. This is an alarm that does not have a normal state.
- **Fault:** occasionally, a device may report a value, which is so far out of range that it is obvious a device or system needs immediate attention.  
For example, if a device with a normal operating temperature of between 70 to 100 degrees reports a temperature of 0 degrees F or 1000 degrees F, it is probable that there is a device or system fault and that the reported temperature is not the actual temperature at the device. This type of condition requires a separate notification for values judged to be faults as opposed to authentic out-of-range conditions.

You can configure alarms to notify specified recipients and be recorded in the database. Normal conditions for an individual point are properties that may be set and edited, as desired, by a user with proper access and privileges.

## Alarm services

Each station may contain a single **AlarmService** that coordinates the routing of alarms within the framework, and maintains the alarm database.

The standard **AlarmService** stores alarms persistently on the station host (controller). The **AlarmService** is available in the **alarm** palette.

In addition to the **AlarmService**, the **MemoryAlarmService** stores alarms in volatile computer memory. This service may be appropriate for situations where you do not want to keep a large store of alarms on your host and are looking primarily for immediate alarm notifications. If a power failure occurs, all alarm records are stored in memory are lost.

**NOTE:** These services are mutually exclusive. A station may have only one or the other, not both.

If you do not have an **AlarmService** in your active station, drag a copy of it from the **alarm** palette.

The **AlarmService** may contain one or more alarm classes. An alarm class may route alarms to one or more alarm recipients. The routing process involves notifying the recipient of the alarm and receiving back from the recipient an alarm acknowledgement. The default view (wire sheet view) of the **AlarmService** makes it easy to visualize the relationships between the alarm class and the alarm recipient. These relationships are

created by linking the alarm class to the alarm recipient. In addition to the wire sheet and property sheet views, the system provides several other `ALarmService` views.

## Alarm state

Alarms may be in an alarm state or acknowledged. They may be open or cleared.

Each alarm is a single record in the system database that changes among one of four states.

- Alarm condition exists: the **alarm** state  
When an event triggers an alarm, it remains in effect until it is acknowledged.
- Alarm acknowledged: the **acknowledged** state  
The alarm has been acknowledged by the recipient. Acknowledged alarms may be normal alarms.
- Alarm status is normal: the **normal** state
- Alarm is a normal alarm that has been acknowledged: **acknowledged normal alarm**

In addition to these states, an alarm may be *open* or *cleared* (closed). An alarm is considered open when it is *not*:

- acknowledged and normal
- acknowledged and an alert

Open alarms display in the alarm console. Cleared alarms do not display in the alarm console. The table shows the conditions that result in an alarm being open or cleared.

Alarm state	Acknowledge State	Open or cleared
Offnormal or Fault	Unacknowledged	Open
Offnormal or Fault	Acknowledged	Open
Normal	Unacknowledged	Open
Normal	Acknowledged	Cleared

## Alarm instructions

Each alarm can have customized instructions assigned to it so that any time an alarm is generated, the instructions are presented with the alarm notification (in the `Alarm Record` window).

Alarm instructions provide information for the system operator. Usually they concern how to handle the condition that gave rise to the alarm. Instructions are created, assigned, and edited from the **Instructions** view.

## Alarm notes

Notes are simple text entries that are associated with a particular alarm. They facilitate communication between operators and may provide historical context for the event that triggered the alarm.

An engineer or operator may add a note to one or more alarms simultaneously. Alarm records that have notes are indicated by a note icon.

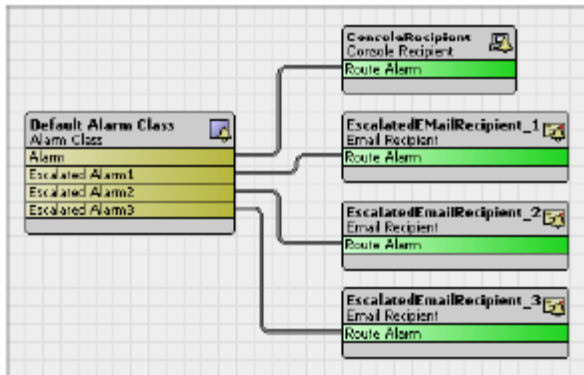
## Alarm escalation

Alarm escalation is a feature that re-routes unacknowledged alarms if they have not been acknowledged within a specified amount of time.

Three levels of escalation provide up to three opportunities to re-route an alarm notification if the alarm remains unacknowledged:



- Escalation Level1
- Escalation Level2
- Escalation Level3



Each level may be routed to a different alarm recipient, so that if an alarm remains unacknowledged long enough, it may be sent to as many as four different recipients (including the original recipient). If a recipient acknowledges an alarm at any level, the system does not escalate the alarm to the next Level.

In addition to having an **Enable** property, each alarm escalation level has a **Delay** property that allows you to set the amount of time that you want to allow an alarm to remain at any level before it is moved to the next escalation level.



# Chapter 2 Alarm setup

## Topics covered in this chapter

- ◆ Adding an alarm extension to a point
- ◆ Configuring alarm extensions
- ◆ Setting up alarm routing

Configuring a system to process alarms involves adding an alarm extension to each point's property sheet. Alarm extensions are contained in the **alarm** palette.

An alarm extension on a point issues alarms to the AlarmService, and updates the alarm record to reflect a state change when the parent point goes back to a normal state. The extension also notifies the point that an acknowledgment has been received.

These basic steps are required to set up the alarming process:

1. Add the proper alarm extension to each component.  
Alarm extension types must match their parent component type. For example, an `OutOfRangeAlarmExt` goes with a Numeric point type and a `BooleanChangeOfStateAlarmExt` goes with a Boolean point type.
2. Configure each point's alarm extension properties to define when the point meets an alarm condition (is in an alarmed state).
3. Setting up alarm routing by defining where an alarm record is to be sent. This includes sending the alarm to the alarm console.
4. Configuring capacity and other alarm management properties.
5. Manage the alarm archive using the alarm archive management tools.

## Adding an alarm extension to a point

The procedure for adding an alarm extension to a point's property sheet is basically the same for all components.

**Prerequisites:** The **alarm** palette is open.

- Step 1 To display the point's property sheet view, select the component in the Nav tree and do one of the following:
  - Right-click the component and click the property sheet view.
  - Select the property sheet view from the view selector.
- Step 2 Expand the extensions folder in the palette and find the extension that matches your data type and collection method.
- Step 3 Drag or copy and paste the extension onto the bottom of the properties sheet.
- Step 4 To view extension properties, expand or double-click the extension.
- Step 5 Fill in the property sheet.
- Step 6 Save your sheet.

## Configuring alarm extensions

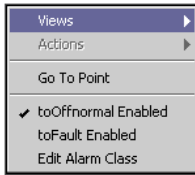
You can change extension properties one at a time or as a group using the alarm extensions manager.

**Prerequisites:** You are viewing the alarm extensions manager.

Step 1 Select one or more (for batch editing) alarm extensions.

Step 2 Open the popup menu and select a change to make to all selected extensions.

For example, the following selection turns on `toOffnormal` for all selected extensions.



In addition to `toOffnormal`, you can enable and disable `toFault`.

Step 3 To change the alarm class assignment of the selected alarm extension(s), click `Edit Alarm Class`.

The system opens another menu.

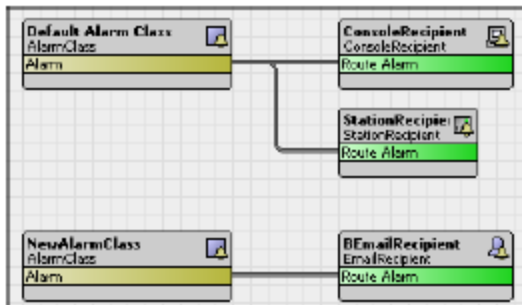
Step 4 Assign the alarm class and click `OK`.

## Setting up alarm routing

You define who to notify when an alarm event occurs by setting up one or more `AlarmClass` components and `AlarmRecipients`. Station-to-station alarm routing requires setup in both stations. Routing to an email or Sms recipient is configured in the point extension of the source.

How many alarm classes and recipient components to connect depend on your needs. For routing to a remote station, you specify the alarm routing in the Alarms extension under the `NiagaraStation` that represents the remote JACE.

- To have a variety of alarming and routing options available for selection from the alarm extension properties, you would set up multiple alarm classes. For example, you may set up an alarm class that routes to the `ConsoleRecipient` and `StationRecipient`, while another alarm class routes alarms only to an email recipient.



- To configure alarms in one station (usually a JACE station) to be received in another station (usually the supervisor station), you would add an `AlarmClass` component and a `StationRecipient` in the `AlarmService` container of the sending (source) station. You then link the `AlarmClass` component to the `StationRecipient`.

It is not necessary to use the same `AlarmClass` components in the two stations (although that is one approach). In the receiving station, if desired, you can configure all alarms from a remote station to route to a single local `AlarmClass`. Or, you can also use a "prepend" or "append" scheme to route to different (but associated) `AlarmClasses`, where all schemes work based on the names of the `AlarmClasses`.

**NOTE:** In the receiving station's `AlarmService`, if you want the remotely-generated alarms to appear in any alarm consoles, be sure to link associated `AlarmClass` components to the necessary `AlarmConsole` components.

## Setting up acknowledgment requirements

When an operator acknowledges an alarm, you can provide a set of common explanations to document the acknowledgment.

**Prerequisites:** You are viewing the AlarmService property sheet.

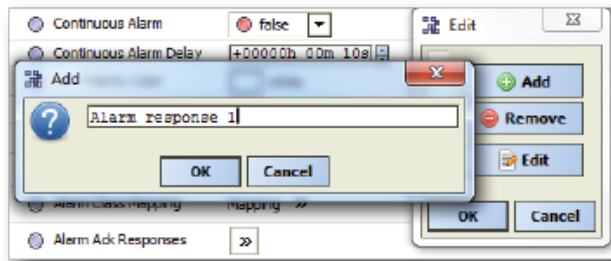
**Step 1** Locate the **Notes Required on Ack** property and set it to `true`.

An additional option list opens. This list provides standard alarm acknowledgment notes for the operator to include in the alarm record when acknowledging the alarm.

**Step 2** To open the **Edit** window, click the chevron (>>) to the right of the property.

**Step 3** To create a note, click **Add**.

The system displays the **Add** window.



**Step 4** Type a note in the add field. This information will help management track the alarm resolution process. You should provide realistic explanations for an acknowledgment without making the list too cumbersome.

When the **Notes Required on Ack** is set to `false`, these Alarm Ack responses are not visible.

## Choosing the alarms to view

You use the **Filters** window to select which alarms to view in the alarm console. This view affects only which alarms display in the alarm console. It does not allow you to edit an alarm record or perform any alarm maintenance.

**Step 1** Open the **Filters** window.

The **Source**, **Alarm Class**, and **User** properties are text strings that allow you to filter using wildcards.

- The wildcard (%) appears by default. If you are using **Source** with a wildcard, put the percent character (%) both before and after the text string. Otherwise, no records match.
- The drop-down list provides options. **Must Not Equal** and **Must Not be Like** do not support the wildcard.
- **Case Sensitive** defaults to enabled.

**Step 2** Configure the filter to suit your needs and click **OK**.

For example, to filter out all Normal alarms, enable **Source State**, click the arrow to the right of **Source State**, select all states except `Normal`, and click **OK**.

**ATTENTION:** Filter settings do not reset automatically. To view all alarm records, open the Filters window and remove the check mark for any checked filter properties.

## Combining different types of alarms

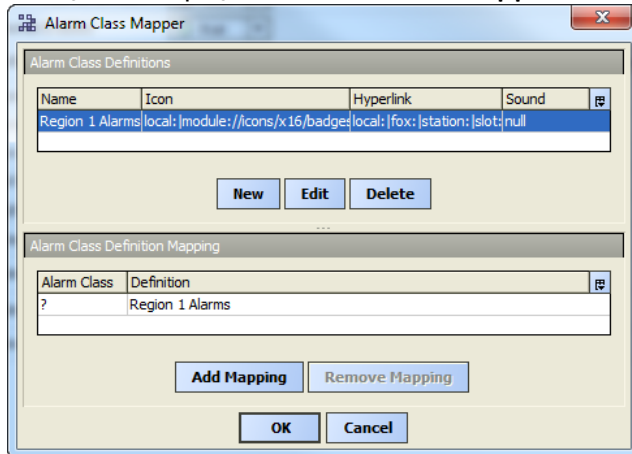
Alarm class mapping allows you to set up the system so that you can import alarms from a variety of alarm classes and have them display, link, and sound in a common manner. You do this by creating alarm class definitions and associating (mapping) existing alarm classes to the definitions.

**Prerequisites:** You are viewing the alarm console.

**Step 1** Click **Alarm**→**AlarmClass Mapping** ....

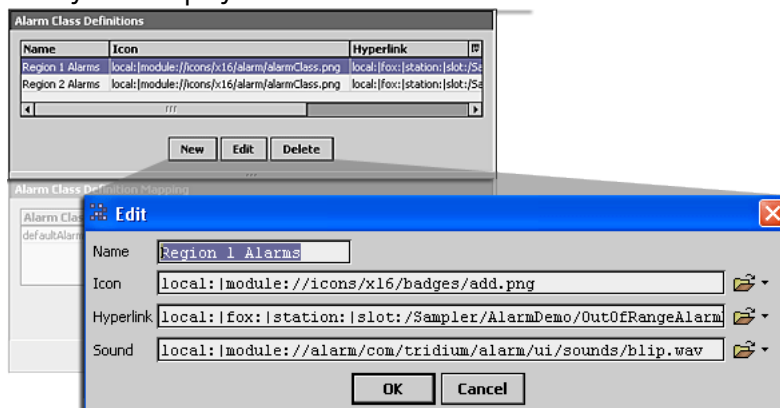
You can also access this window from the **Alarm Console** window inside the Workbench **Options** window.

The system displays the **Alarm Class Mapper** window.



**Step 2** To create an alarm mapper definition, click **New** in the upper pane.

The system displays the **New** window.

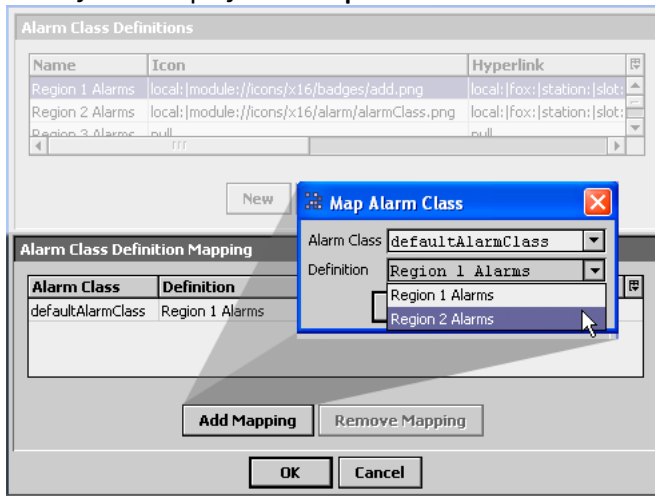


**Step 3** Fill in the definition properties and click **OK**.

**Step 4** In the upper pane, select a definition.

**Step 5** In the lower pane, select the alarm class to associate with the definition and click **Add Mapping**.

The system displays the **Map Alarm Class** window.



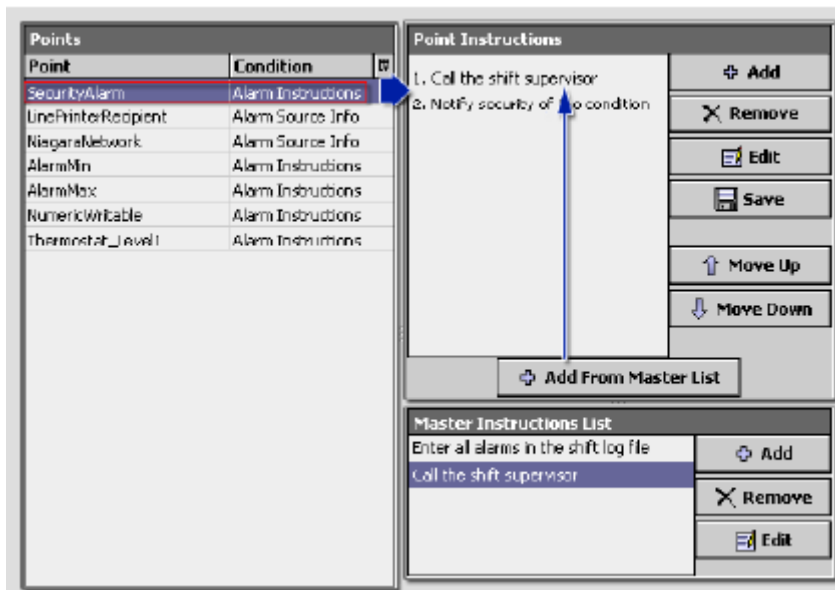
Step 6 For the selected **Alarm Class**, select the **Definition** and click **OK**.

**NOTE:** The icons, hyperlinks, and sounds in the alarm mapper definition do not override those that are assigned in the alarm extension itself. If these parameters are assigned in both the alarm extension and in the alarm class mapper definition, the alarm class mapper definition parameters are ignored.

## Setting up alarm instructions

Alarm instructions provide immediate assistance to the system operator regarding how to recover from an alarm condition. You add instructions to individual points so that when the point goes into an alarm condition the instruction is available to guide the operator.

Step 1 Access the **Instructions Manager** view.



The screen capture above shows an example of one point and one master instruction selected.

Step 2 Add or edit point instructions using the control buttons in the **Point Instructions** pane.

Step 3 Add any master instructions in the **Master Instructions List** pane.

The master instructions list allows you to enter instructions that are available to be assigned to any point

Step 4 Select the points that require instructions.

You may hold the **Shift** and **Ctrl** keys to select multiple points that receive the same instructions.

**NOTE:** If you are selecting multiple points to edit their assigned instructions, all must have identical instructions for the instructions to appear in the **Point Instructions** pane. If there are differences between instructions for the selected points, nothing appears in the pane.

Step 5 In the **Master Instructions List** pane, select the master instruction(s) to associate with the selected point(s) and click **Add From Master List**.

You may hold the **Shift** and **Ctrl** keys to select multiple instructions to assign.

Step 6 Click **Save**.

**ATTENTION:** Click **Save** immediately after making any change. If the screen refreshes and you have not saved, you lose any instructions you are in the process of entering.

Once you add the instructions text to an alarm, the instructions appear in the **Alarm Record** window (accessible from the **Open Alarm Sources** window) for any new alarms associated with the point.

## Scheduling a periodic email report from a station

Each station may be configured to periodically send a report to an email recipient.

Step 1 Add the Report View ord to the **Source** property in the ExportSource component by using the **Export Source Wizard**.

Step 2 Access the view you wish to periodically send from the station to the recipient.

Step 3 Click the Export icon on the toolbar or click **File**→**Export** from the main menu.

Step 4 Select the **On Call User Report Pdf Exporter** exporter.



# Chapter 3 Alarm management

## Topics covered in this chapter

- ◆ Acknowledging alarms
- ◆ Silencing alarms
- ◆ Inhibiting alarms
- ◆ Adding a note to an alarm
- ◆ Creating a PDF of the current view
- ◆ Deleting alarm records
- ◆ Alarm best practices
- ◆ Changing the alarm class assignment
- ◆ Tracking alarms that use the OnCallService

The alarm process begins with the source of a condition that triggers an alarm. After creating the alarm, the system routes it to a recipient whose job it is to manage each alarm using the alarm console.



This simple process provides highly specific and flexible alarming life cycle management.

### 1. Alarm creation

Alarms are generated by components using an alarm extension. The alarm extensions create the alarm whenever specified values are outside of normal range. Alarms are then handled by the alarm service.

### 2. Alarm routing

In addition to allowing you to specify the routing destinations (including archiving destinations, the alarm service provides notification and acknowledgment properties:

- **Notification**

Alarms are routed to one or more recipients based on the class of the alarm. This includes notification by email, at the alarm console, on a lineprinter, or at one or more remote stations.

- **Acknowledgment**

Alarms may require a response from those who are notified. If a required acknowledgment is not received within an optionally-specified time, alarms can be escalated and re-routed to other designated alarm recipients.

### 3. Alarm management

Alarms are managed using the alarm console. Alarms are archived in records that are managed by the database management interface.

## Acknowledging alarms

As the name implies, acknowledging an alarm verifies human awareness that a potentially detrimental event has occurred or a condition exists with a device that is outside its normal range of operation. Alarms cannot be removed from the alarm console or alarm portal until they are both acknowledged, and the alarm source returned to a normal state (no longer in alarm).

You may acknowledge alarms in two places:

- the alarm console
- the alarm portal

## Acknowledging alarms from the alarm console

This procedure acknowledges alarms from the alarm console.

**Step 1** Right-click on the `ConsoleRecipient` node in Nav side bar pane.


A popup menu displays.

**Step 2** Click **Views→Alarm Console**.

Each record that appears in the alarm console table represents one alarm source and one or more alarms from that source.

**Step 3** Select alarm source(s) to acknowledge. You may select multiple alarms using the **Shift** or **Ctrl** keys.

**Step 4** Do one of the following:

- To acknowledge the latest (most recent) alarm, left-click the alarm and click the  **Alarm Acknowledge** toolbar button or click **Alarm→Acknowledge** from the menu.
- To acknowledge all alarms that are reported from a single source, click **Alarm→Acknowledge All** or click the **Acknowledge All** button at the bottom of the console.

The latest or all alarms from each selected alarm source are acknowledged.

## Acknowledging alarms from the alarm portal

This procedure acknowledges alarms from the alarm portal.

### Prerequisites:

The alarm portal must be running and configured to include all desired alarm consoles before it can be used to acknowledge alarms.

**Step 1** Click **Tools→Alarm Portal**.

The **Alarm Portal** view displays in the view pane.

**Step 2** If the Alarm Console does not appear in the **Alarm Console Monitor** table (top portion of the **Alarm Portal**), follow these steps:

a. Right-click in the **Alarm Console Monitor** area and select **Add Alarm Console**

The **Add Alarm Console** wizard appears.

b. Complete the **Add Alarm Console** wizard by entering the following information:

- Host address information, as needed (IP or dialup)
- Credentials information (username and password)
- Choose the desired console, by Ord (if more than one is present at the host address)

c. Click the **Finish** button to complete the **Add Alarm Console** wizard.

The alarm console appears in the **Alarm Console Monitor** table (top portion of the **Alarm Portal** view). Any alarms will appear in the **Open Alarm Sources** table (bottom portion of the **Alarm Portal** view).

**Step 3** In the **Open Alarm Sources** table, select alarm the sources to acknowledge. To select multiple alarms, use the **Shift** or **Ctrl** keys.

**Step 4** Do one of the following:


- To acknowledge the latest (most recent) alarm, click **Alarm→Acknowledge** or click the **Acknowledge** button at the bottom of the console.
- To acknowledge all alarms that are reported from a single source, click **Alarm→Acknowledge All** or click the **Acknowledge All** button at the bottom of the console.

The latest or all alarms from each selected alarm source are acknowledged.

## Silencing alarms

This procedure turns off the alarm sound. It should be followed by resolving the alarm condition and acknowledging the alarm.

**Prerequisites:** The alarm console is open.

- Step 1 Select alarm source(s) to silence. You may select multiple alarms using the **Shift** or **Ctrl** keys.
- Step 2 To silence one or more alarms, click the  **Alarm Silence** toolbar button or select **Alarm→ Silence** from the menu.

## Inhibiting alarms

There may be an occasion when you need to temporarily prevent an alarm from sounding. The purpose of the **Alarm Inhibit** property is to prevent unintended alarms, such as in after-hours situations where a piece of equipment is turned off.

- Step 1 Display the property sheet for the alarm extension.
- Step 2 Set **Alarm Inhibit** to `true` and set the **Inhibit Time**.
- Step 3 Set the **Time Delay** that the alarm condition must exist before the alarm generates.

**NOTE:** Time Delay does not affect alarms generated by a fault. There is no delay when transitioning in or out of a Fault generated alarm.

Time delays apply to properties that transition both *in* and *out* of alarm states. Therefore, an alarm status may continue to display as Offnormal (for example) for a time (equal to the Time Delay) after the value returns to Normal. The Time Delay is the minimum time period that a normal condition must exist before the object comes out of alarm.

**NOTE:** Typically, when both **Alarm Delay** and **Alarm Inhibit** properties are used, **Time Delay** is less (shorter) than **Alarm Inhibit**.

## Adding a note to an alarm

Adding a note to an alarm record provides useful information to guide the resolution of the alert or alarm condition.

- Step 1 Select one or more alarm rows on the alarm console and click **Notes** at the bottom of the alarm console.

The **Notes** window opens. If the selected alarm record represents a source with multiple alarms, the system adds any note you create to all the alarms associated with the source.

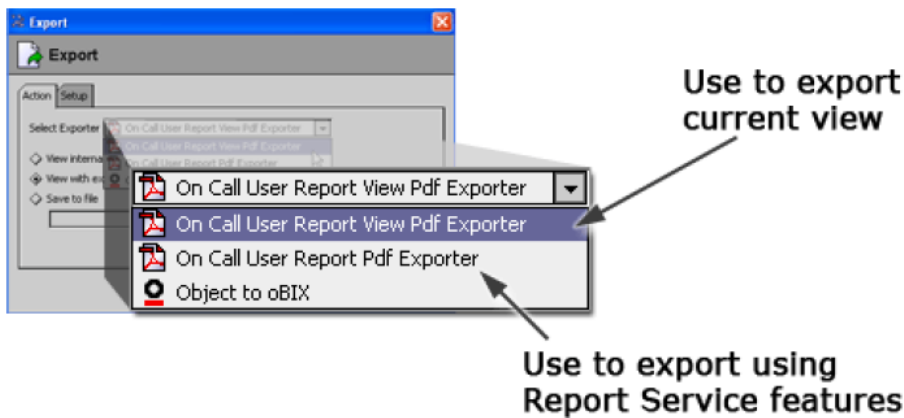
If a given alarm row has more than one alarm associated with it, the window displays `<Multiple Alarms>`.

- Step 2 Type the note and click **Add Note**.

## Creating a PDF of the current view

The system provides many lists of information. You can use the export feature to create a PDF for emailing or printing.

- Step 1 Access the view you wish to save as a PDF.
- Step 2 Click the Export icon on the toolbar or click **File**→**Export** from the main menu.
- Step 3 Select the exporter to use.



Two PDF exporters are available:

- **On Call User Report View Pdf Exporter**  
This option creates a PDF from the current view using the standard Workbench export function. You use the report view time range fields to set the range of the report.
- **On Call User Report Pdf Exporter**  
This option creates a report using the Report Service, which allows you to schedule and email the report from a station on a periodic basis, as desired.

Step 4 Select the additional options.

- **View internal**
- **View with ex**
- **Save to file**

## Deleting alarm records

Alarms may not be deleted from the alarm database until they have been acknowledged and until the source device is in a normal (not alarm) state.

**Prerequisites:** The Alarm Data Maintenance view is open.

Step 1 Select one of the following three options:

- **Clear Old Records** clears alarm records before the date and time specified in the **Before** field. This field is not available when you select either of the other options.
- **Clear All Before Selected Record** deletes all records that have a timestamp earlier than the timestamp of the record that you select in the **Alarm History** pane table. The selected record is not deleted.
- **Clear All Records** deletes all records that appear in the **Alarm History** pane table regardless of the date.

Step 2 Click the **Run Maintenance** button to initiate the delete action.

The **Confirm Clear** dialog box displays to clarify that you are about to delete records and that the operation cannot be reversed.

Step 3 If the information in the **Confirm Clear** dialog box confirms that you are deleting the desired alarm records, click the **Yes** button (otherwise click the **No** button).

The alarm records are deleted and removed from the Alarm History table in the **Alarm History** pane.

## Alarm best practices

Beyond the basic procedures, this topic provides advice for useful alarm practices.

- The **Alarm Database Maintenance** view allows users to clear records from the database. To provide information to an operator who should not be allowed to delete records, use the **Alarm Db** view.
- Set up an alarm class that routes to the console recipient and station recipient. Then use another alarm class to route alarms to an email recipient.

## Changing the alarm class assignment

You change the alarm class assignment of the alarm extension through the alarm extension manager.

- Step 1 Right-click the **AlarmService** and click **Views→Alarm Ext Manager**.
- Step 2 Select one or more alarm extensions.
- Step 3 Right-click and click **Edit Alarm Class** on the popup menu.
- Step 4 Choose the desired alarm class from the option menu and click **OK**.

## Tracking alarms that use the OnCallService

The spy pages can provide helpful information for tracking alarms and debugging on-call processing. Spy page views are available for the **OnCallLists** and the **OnCallRecipients**.

- Step 1 To open a spy page, right-click the **OnCallList** or **OnCallRecipient** in the Nav tree and click **View→Spy Remote**.

The **OnCallList** spy page opens.

The spy pages provide important information including: the current **On Call Priority** assignment, the current **On Call Contacts**, and the current time **Remaining** until a notification is sent to the next **On Call Contact** if an alarm is not acknowledged.

- Step 2 Click the refresh button to update the spy page information.



# Chapter 4 Components

## Topics covered in this chapter

- ◆ alarm-AlarmService
- ◆ alarm-AlarmSourceInfo
- ◆ alarm-AlarmClass (DefaultAlarmClass)
- ◆ alarm-AlarmClassFolder
- ◆ onCall-OnCallService
- ◆ alarm-MemoryAlarmService
- ◆ email-EmailAlarmAcknowledger
- ◆ Types of alarm recipients
- ◆ Types of alarm extensions

Component include services, folders and other model building blocks associated with a module. They may be dragged and dropped onto a Property or Wire sheet from a palette.

The descriptions included in the following topics appear as headings in documentation. They also appear as context-sensitive help topics when accessed by:

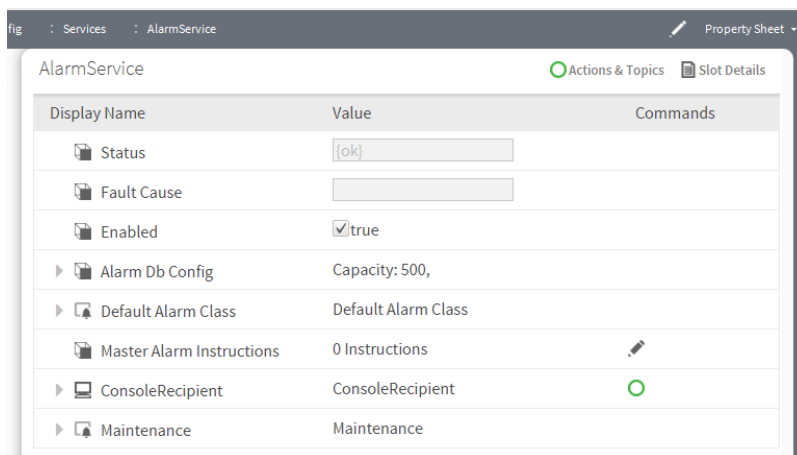
- Right-clicking on the object and selecting **Views→Guide Help**
- Clicking **Help→Guide On Target**

Following is a list of the components in the **template** module:

## alarm-AlarmService

This component uses **AlarmClasses** to route all alarm messages between **AlarmSources** and **AlarmRecipients**. Each station contains a single **AlarmService**, which is available in the **alarm** palette.

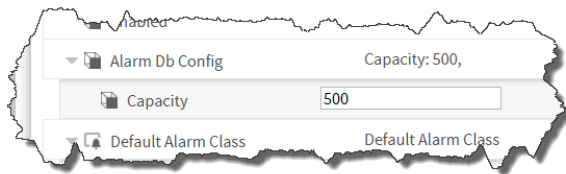
Figure 1 AlarmService property sheet



Property	Value	Description
Status [component]	text	Read-only field. Indicates the condition of the component at last polling. <ul style="list-style-type: none"> <li>{ok} indicates that the component is polling successfully.</li> <li>{down} indicates that polling is unsuccessful, perhaps because of an incorrect property.</li> <li>{disabled} indicates that the <b>Enable</b> property is set to false.</li> <li>fault indicates another problem.</li> </ul>
Fault Cause	text	Read-only field. Indicates why the network, component, or extension is in fault.
Enabled	true or false	Activates and deactivates use of the function.
Db Config	heading	Provides access to database configuration properties. See <a href="#">Db Config, page 24</a> .
Default Alarm Class	heading	Defines basic alarm properties, reports alarm counts and establishes escalation levels. See <a href="#">Default Alarm Class, page 25</a> .
Master Alarm Instructions	app	Clicking the edit icon (pencil) to the right opens a window for adding and managing alarm instructions. See <a href="#">Master Alarm Instructions, page 26</a> .
Console Recipient	heading	Provides access to console recipient properties. See <a href="#">Console Recipient, page 26</a> .
Maintenance	heading	Provides access to maintenance properties. See <a href="#">Maintenance, page 27</a> .

## Db Config

Figure 2 AlarmService DbConfig properties

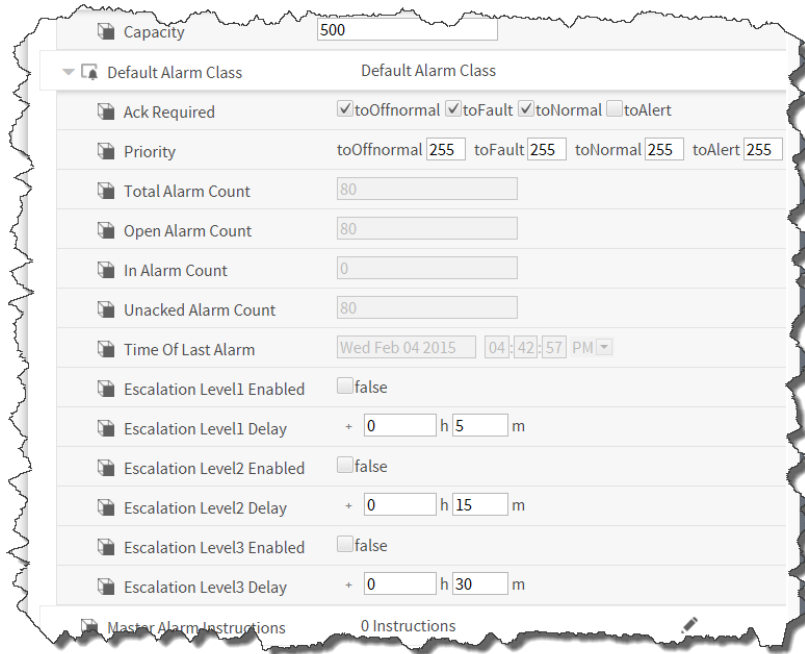


Property	Value	Description
Capacity	1–250,000 records	Defines the number of alarm records to store in the histories database. When the capacity is reached, newer alarm records overwrite the oldest records.



## Default Alarm Class

Figure 3 AlarmService DefaultAlarmClass properties

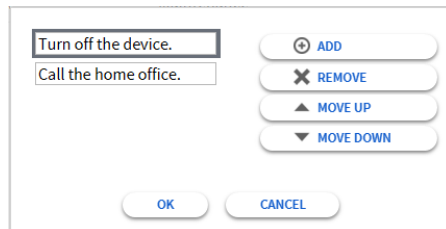


Property	Value	Description
Ack Required	true or false	The alarm must be acknowledged.
Priority [on-call contact]	1–255 for each transition, default: 255; %priority% on a report	Specifies the order in which the <b>OnCallService</b> sends alarm notifications to the <b>OnCallContact</b> . Priority levels are indicated graphically by colors and are set up using the alarm options dialog box. The contact with the lowest number (highest priority) receives notification first. An alarm that is not acknowledged within the designated time is forwarded to the next contact in the list.  <b>NOTE:</b> Contacts may share the same Priority number. The <b>On-CallService</b> sends an identical notification to all contacts that have the same priority number
Total Alarm Count	read-only	Displays the total number of alarms assigned to the alarm class from all sources.
Open Alarm Count	read-only	Displays the current total number of alarms that are unacknowledged and normal or unacknowledged and an alert.
In Alarm Count	read-only	Displays the total number of alarm conditions.
Unacked Alarm Count	read-only	Displays the total number of unacknowledged alarms.
Time of Last Alarm	read-only	Displays the time that system generated the last alarm assigned to this alarm class.

Property	Value	Description
Escalation Level(n) Enable	false check box, where n is 1, 2 or 3	The escalation level defaults to "true" (enabled). Selecting this check box turns this escalation level off.
Escalation Level(n) Delay	hours and minutes; one minute is the smallest increment you can set for this property.	Sets the time between alarm generation and escalation. It is not the time between escalation levels. Set a time to allow an unacknowledged alarm to remain unacknowledged before you escalate it to the next level.

### Master Alarm Instructions

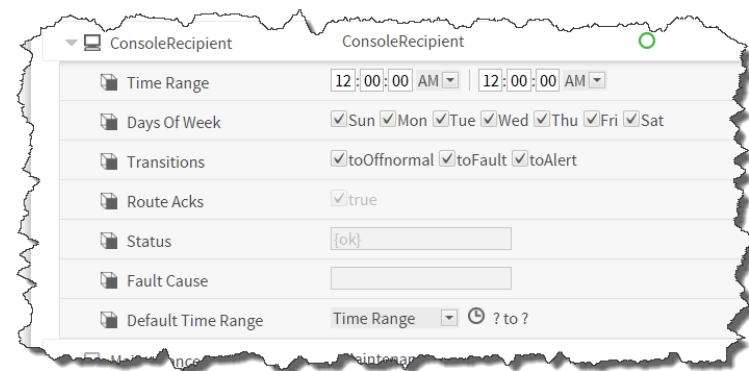
Figure 4 Master instructions



Button	Value	Description
Add	n/a	Adds an instruction to the list.
Remove	n/a	Deletes the selected instruction from the list.
Move Up/Down	n/a	Moves the selected instruction higher or lower in the list.

### Console Recipient

Figure 5 AlarmService ConsoleRecipient properties

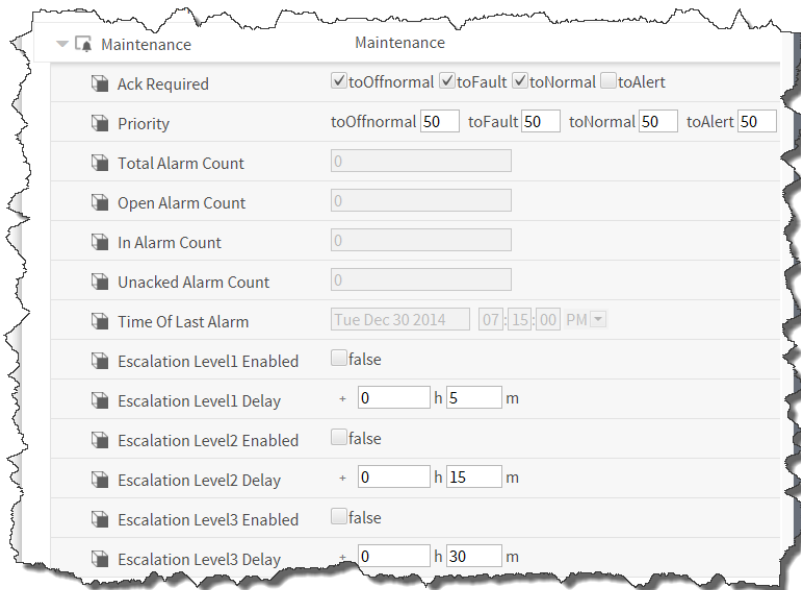


Property	Value	Description
Time Range	Start Time and End Time	Start Time sets the time of day to begin the function (for example, trigger schedule, alarm event)
Days of the Week or Days of Week		
Transitions	Option boxes	Allow selection of specific alarm transitions to display in the console. Only those transitions that are selected will be

Property	Value	Description
		displayed in the console - even though the alarms are still saved into the alarm history.
Route Acks	true or false	Enables and disables the routing of alarm acknowledgements to the recipient.
Status [component]	text	Read-only field. Indicates the condition of the component at last polling. <ul style="list-style-type: none"> <li>{ok} indicates that the component is polling successfully.</li> <li>{down} indicates that polling is unsuccessful, perhaps because of an incorrect property.</li> <li>{disabled} indicates that the <b>Enable</b> property is set to false.</li> <li>fault indicates another problem.</li> </ul>
Fault Cause	text	Read-only field. Indicates why the network, component, or extension is in fault.
Default Time Range	drop-down list of time options	Provides a list of options for controlling how much information to display on the alarm console. If you select <b>Time Range</b> , the system prompts you for a beginning and ending time.

## Maintenance

Figure 6 AlarmService Maintenance properties



Property	Value	Description
Ack Required	true or false	The alarm must be acknowledged.
Priority [on-call contact]	1–255 for each transition, default:	Specifies the order in which the <b>OnCallService</b> sends alarm notifications to the <b>OnCallContact</b> . Priority levels are indicated graphically by colors and are set up using the alarm

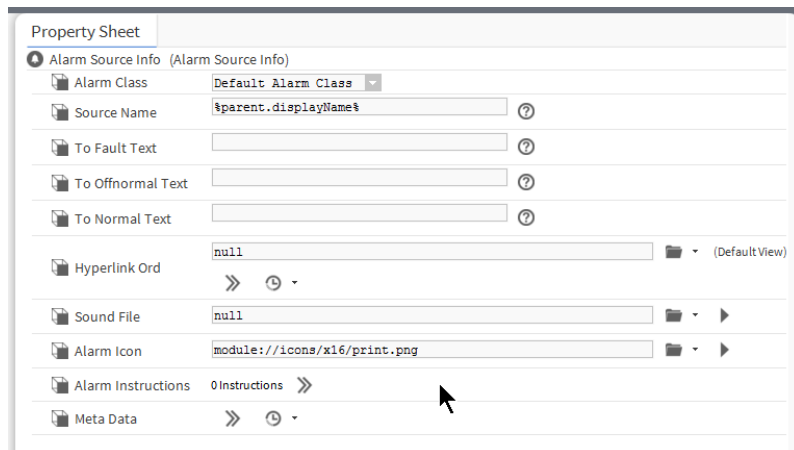
Property	Value	Description
	255; %priority% on a report	options dialog box. The contact with the lowest number (highest priority) receives notification first. An alarm that is not acknowledged within the designated time is forwarded to the next contact in the list.  <b>NOTE:</b> Contacts may share the same Priority number. The <b>On-CallService</b> sends an identical notification to all contacts that have the same priority number
Total Alarm Count	read-only	Displays the total number of alarms assigned to the alarm class from all sources.
Open Alarm Count	read-only	Displays the current total number of alarms that are unacknowledged and normal or unacknowledged and an alert.
In Alarm Count	read-only	Displays the total number of alarm conditions.
Unacked Alarm Count	read-only	Displays the total number of unacknowledged alarms.
Time of Last Alarm	read-only	Displays the time that system generated the last alarm assigned to this alarm class.
Escalation Level(n) Enable	false check box, where n is 1, 2 or 3	The escalation level defaults to "true" (enabled). Selecting this check box turns this escalation level off.
Escalation Level(n) Delay	hours and minutes; one minute is the smallest increment you can set for this property.	Sets the time between alarm generation and escalation. It is not the time between escalation levels. Set a time to allow an unacknowledged alarm to remain unacknowledged before you escalate it to the next level.

## alarm-AlarmSourceInfo

This container slot is available on any network component, and each child device component. The slot's properties populate the alarm record when the network or device does not respond to a monitor ping. This ping is configured at the network level.

Each parent and child device object has its own **Alarm Source Info** slot with identical (but independently maintained) properties.

Figure 7 Alarm Source Info



Property	Value	Description
Alarm Class	List, console column, or field or % alarmClass% on a report.	Specifies the alarm routing option for the component.
sourceName	text	Displays the name in an alarm record that identifies the source of the alarm.
To Fault Text	text	The text to display when the component transitions to a Fault status. When applicable, text entered for <b>Fault Algorithm</b> , <b>High Limit Text</b> and/or <b>Low Limit Text</b> may override this text.
To Offnormal Text	text	The text to display when the component transitions to an Off-normal (alarm) state. When applicable, text entered for <b>Fault Algorithm</b> , <b>High Limit Text</b> and/or <b>Low Limit Text</b> may override this text.
To Normal Text	text	The text to display when the component transitions to a Normal status. When applicable, text entered for <b>Fault Algorithm</b> , <b>High Limit Text</b> and/or <b>Low Limit Text</b> may override this text.
Hyperlink Ord or Hyperlink	Ord, BQL Query or path	Associates an ord, BQL query or path with an alarm state on the component. When an alarm is reported in the console, the Hyperlink button activates. Clicking this button links to the location you specify here.
Sound File	ord	The path to a sound file that plays when the current component is in an alarm state. Use the folder icon to browse to the file. Click the arrow icon to the right of the folder icon to test the path.
Alarm icon	text	Defines the path to a graphic file the system includes in the <b>Timestamp</b> column of the alarm table in the <b>Console Recipient</b> view. Use the folder icon to browse for the file. Use the right-arrow to test the location you entered.
Alarm Instructions	text	Advice that accompanies the alarm notification ( <b>Alarm Record</b> window) that provides important information for the operator. Click the right-pointing arrow to view the instructions.
Meta Data [alarms]	text	Allows you to enter new facets for the extension.

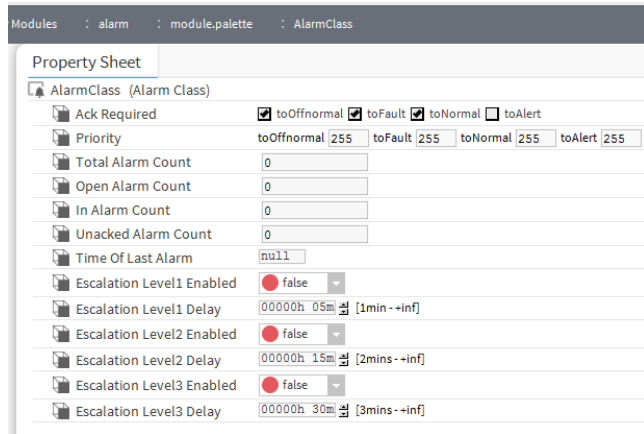
## alarm-AlarmClass (DefaultAlarmClass)

An AlarmClass object is used to group alarms that have the same routing and handling characteristics. The AlarmClass is available in the alarm palette.

The alarm class:

- Routes alarms with some similar set of properties along common routes that serve as channels for like data.
- Manages the persistence of the alarms as needed via the alarm archive, but otherwise merely chains alarms from the alarm source via a topic.
- Manages which alarms require acknowledgement.
- Is the basis for visual grouping in the alarm console.

Figure 8 Alarm Class



Property	Value	Description
Ack Required	true or false	The alarm must be acknowledged.
Priority [on-call contact]	1–255 for each transition, default: 255; %priority% on a report	Specifies the order in which the <code>OnCallService</code> sends alarm notifications to the <code>OnCallContact</code> . Priority levels are indicated graphically by colors and are set up using the alarm options dialog box. The contact with the lowest number (highest priority) receives notification first. An alarm that is not acknowledged within the designated time is forwarded to the next contact in the list.  <b>NOTE:</b> Contacts may share the same Priority number. The <code>OnCallService</code> sends an identical notification to all contacts that have the same priority number
Total Alarm Count	read-only	Displays the total number of alarms assigned to the alarm class from all sources.
Open Alarm Count	read-only	Displays the current total number of alarms that are unacknowledged and normal or unacknowledged and an alert.
In Alarm Count	read-only	Displays the total number of alarm conditions.
Unacked Alarm Count	read-only	Displays the total number of unacknowledged alarms.
Time of Last Alarm	read-only	Displays the time that system generated the last alarm assigned to this alarm class.
Escalation Level(n) Enable	false check box, where n is 1, 2 or 3	The escalation level defaults to "true" (enabled). Selecting this check box turns this escalation level off.
Escalation Level(n) Delay	hours and minutes; one minute is the smallest increment you can set for this property.	Sets the time between alarm generation and escalation. It is not the time between escalation levels. Set a time to allow an unacknowledged alarm to remain unacknowledged before you escalate it to the next level.

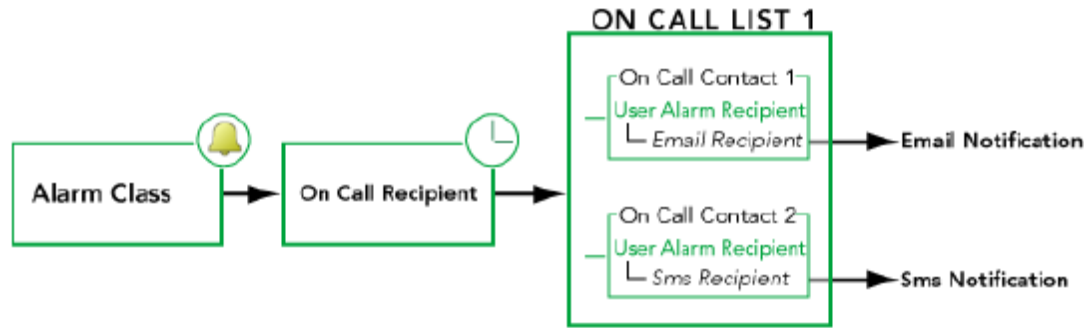
### alarm-AlarmClassFolder

This is a container object provided for organizing groups of alarm class objects. The `AlarmClassFolder` is available in the alarm palette.

## onCall-OnCallService

This component is a customization of the AlarmService. It expands the features of standard alarm escalation to notify users based on a priority list (contact list). The `OnCallService` initiates an email (or text message) notification for designated alarms, sending the notification sequentially, as alarms escalate, to users based on their assigned priority. The `OnCallService` allows you to set up a flexible user contact list and schedule that list using the standard scheduler interface.

Figure 9 On call processing



The general process for the `OnCallService` is as follows:

1. A designated alarm class receives an alarm notification and sends the alarm notification to an `OnCallRecipient`.
2. The `OnCallRecipient` sends the alarm notification to the active `OnCallList`.

The active `OnCallList` is designated by the **On Call List Schedule**. The `OnCallList` specifies which users (`OnCallContacts`) are notified. The `OnCallContact` properties include a reference to a **User Alarm Recipient** which specifies how the alarm notification is sent. For example, **User Alarm Recipient** types include:

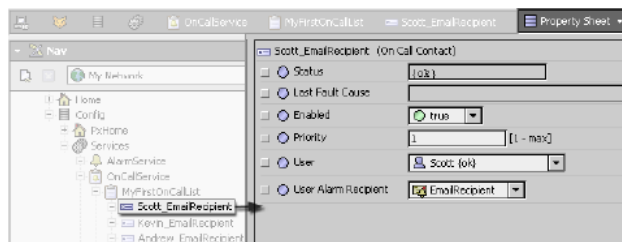
- **EmailRecipient** (sends alarm notification by email)
- **SmsRecipient** (sends alarm notification by text message)

3. After a specified time, if no recipient acknowledges the alarm, the system escalates the alarm and sends an email or text message to the next specified contact. The system continues to escalate each alarm until a recipient acknowledges it or until it reaches the final escalation level. At any time, any user on the contact list may acknowledge the alarm and halt the escalation process.

To add the `OnCallService` to a station, drag a copy of the `OnCallService` from the **onCall** palette to the **Config→Services** node in the Nav tree.

### On-call contact

This item in an on-call contact list represents a single user and provides properties you configure for routing alarm notifications. Only users that exist under the `UserService` may be assigned to an on-call contact list.



Any time an on-call contact property changes, the on-call list initiates a notification cycle. You may edit on-call contact properties using the contact's property sheet or the **Edit** window that is available from the **On Call Contact Manager**.

Property	Value	Description
Status [component]	text	Read-only field. Indicates the condition of the component at last polling. <ul style="list-style-type: none"> <li><code>{ok}</code> indicates that the component is polling successfully.</li> <li><code>{down}</code> indicates that polling is unsuccessful, perhaps because of an incorrect property.</li> <li><code>{disabled}</code> indicates that the <code>Enable</code> property is set to false.</li> <li><code>fault</code> indicates another problem.</li> </ul>
Last Fault Cause		
Enabled	true or false	Activates and deactivates use of the function.
Priority [on-call contact]	1–255 for each transition, default: 255; %priority% on a report	Specifies the order in which the <code>OnCallService</code> sends alarm notifications to the <code>OnCallContact</code> . Priority levels are indicated graphically by colors and are set up using the alarm options dialog box. The contact with the lowest number (highest priority) receives notification first. An alarm that is not acknowledged within the designated time is forwarded to the next contact in the list.  <b>NOTE:</b> Contacts may share the same Priority number. The <code>OnCallService</code> sends an identical notification to all contacts that have the same priority number
User [general]	Drop-down list	Displays the currently assigned User and provides options for selecting a new User. All Users that are under the <code>UserService</code> are presented as options to select. To view or edit User information, open the <b>User Manager</b> view (the default view of the <code>UserService</code> ).
User Alarm Recipient	text	Specifies the method by which the user receives notification of an alarm: If they have been added under the <code>AlarmService</code> , <code>EmailRecipient</code> or <code>SmsRecipient</code> are the available options. The <code>EmailRecipient</code> component is available in the <b>email</b> palette and the <code>SmsRecipient</code> is available in the <b>Sms</b> palette. You must choose an alarm recipient to designate the way alarm notifications are routed to the selected On Call Contact.

## onCall-OnCallList

This component contains a set of one or more people (`OnCallContacts`) to contact when an alarm event occurs. You create, edit, or delete unique on call lists using the **On Call List Manager** view.

When you create a list, it appears under the `OnCallService` node in the Nave tree and is also available as an option on the Event Output property of the on-call list schedule's **Scheduler** view from where you may select it as a scheduled event.

Like other scheduled outputs, you may assign more than one on-call list to a single day. The on call list is active only during the scheduled day and time. The on-call list active status is displayed in the on call **List** property sheet view as well as in the **On Call List Manager** view.

**NOTE:** When assigning `OnCallList` events in the **Scheduler** view, make sure **OnCallList** event times are contiguous.



Property	Value	Description
Active	Active or Inactive	Displays the current state of the list as defined by the On Call List Schedule. Only one On Call List is active at a time.
Last Fault Cause		

## alarm-MemoryAlarmService

This component provides an alternative to the standard file-based **AlarmService**. When you use this service, alarms are not stored persistently on the station's host as they are with the standard file-based **AlarmService**. The **MemoryAlarmService** is available in the **alarm** palette.

This service coordinates the routing of alarms within the framework.

**NOTE:** A station should have only one alarm service. Do not enable both the standard **AlarmService** and **MemoryAlarmService** on the same station.

Choosing **MemoryAlarmService** might be appropriate for situations where you do not want to keep a large store of alarms on your host and are looking primarily for immediate alarm notification. Alarm records are stored in memory and are lost in the case of a power failure.

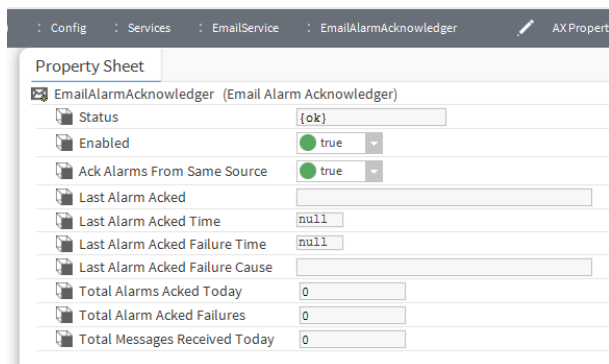
Like the **AlarmService**, the **MemoryAlarmService** may contain one or more alarm classes. An alarm class may route alarms to one or more alarm recipient types.

The routing process and views are the same as those for the standard file-based alarm service, including alarm acknowledgements from the recipients back to the source, as well as alarm notifications from the source to the recipients. The default view (wire sheet view) of the **AlarmService** makes it easy to visualize the relationships between the alarm class and the alarm recipient. These relationships are created by linking the alarm class to the alarm recipient.

## email-EmailAlarmAcknowledger

The **EmailAlarmAcknowledger** component provides a way to acknowledge alarms by sending an email reply to an email alarm notification. This component is available in the **email** palette and works with alarm notifications that are sent out using the **OnCallService** or directly from the **EmailService**.

Figure 10 EmailAlarmAcknowledger properties



Property	Value	Description
Status [component]	text	Read-only field. Indicates the condition of the component at last polling. <ul style="list-style-type: none"> <li><code>{ok}</code> indicates that the component is polling successfully.</li> <li><code>{down}</code> indicates that polling is unsuccessful, perhaps because of an incorrect property.</li> <li><code>{disabled}</code> indicates that the <code>Enable</code> property is set to <code>false</code>.</li> <li><code>fault</code> indicates another problem.</li> </ul>
Enabled	true or false	Activates and deactivates use of the function.
Ack Alarms From Same Source	drop-down list	<code>true</code> acknowledges the current and all previous alarms from this source with a single email reply. For example, a single control point may go in and out of alarm repeatedly generating 23 unacknowledged alarms reported and displayed in the alarm console. With this property set to <code>true</code> , a single email acknowledgment can acknowledge all 23 alarms.  <code>false</code> acknowledges a single alarm. Each alarm must be acknowledged separately.
Last Alarm Acked	read-only text	Displays the identity of the last alarm that was acknowledged.
Last Alarm Acked Time	read-only time	Displays the identity of the last alarm that was acknowledged.
Last Alarm Acked Failure Time	read-only time	If an attempt to acknowledge an alarm failed, a message with the time of the last failure displays.
Last Alarm Acked Failure Cause	read-only text	If there has been a failure in the attempt to acknowledge an alarm, this field displays a message indicating the possible reason for the last failure.
Total Alarms Acked Today	read-only number	Displays the current number of alarms that have been acknowledged for the day. This number is reset to zero at midnight.
Total Messages Received Today	read-only number	Displays the current number of email messages that have been received for the day. This number is reset to zero at midnight.

## Types of alarm recipients

Alarm recipients are linked to an alarm class (from the alarm topic on the alarm class to the `routeAlarm` action on `AlarmRecipient`). Recipients may be configured to receive alarms at certain times of the day, certain days of the week, and to receive alarms of only specified transitions. There are several subclasses of the alarm recipient.

### alarm-ConsoleRecipient

This component manages the transfer of alarms between the alarm history and the alarm console. The `ConsoleRecipient` is available in the `alarm` palette. For example, the console recipient gets unacknowledged alarms from the alarm history and updates the history when they are actually acknowledged. To view this property sheet, right-click the `ConsoleRecipient` component in the Nav tree and click **Views**→**Property Sheet**.

The default view of the console recipient is the alarm console view.

Console recipient properties are displayed and edited in the console recipient property sheet.

The screenshot shows a 'Property Sheet' for 'ConsoleRecipient'. The interface includes a breadcrumb trail: 'Config > Services > AlarmService > ConsoleRecipient'. The 'Property Sheet' title bar has 'Actions & Topics' and 'Slot Details' icons. The main area is a table with columns 'Display Name', 'Value', and 'Comments'. The properties listed are:

- Time Range:** Two time pickers, both set to 12:00:00 AM.
- Days Of Week:** Checkboxes for Sun, Mon, Tue, Wed, Thu, Fri, and Sat, all of which are checked.
- Transitions:** Checkboxes for toOffnormal, toFault, and toAlert, all of which are checked.
- Route Acks:** A checkbox labeled 'true' which is checked.
- Status:** A text input field containing '{ok}'.
- Fault Cause:** An empty text input field.
- Default Time Range:** A dropdown menu set to 'Year-To-Date'.

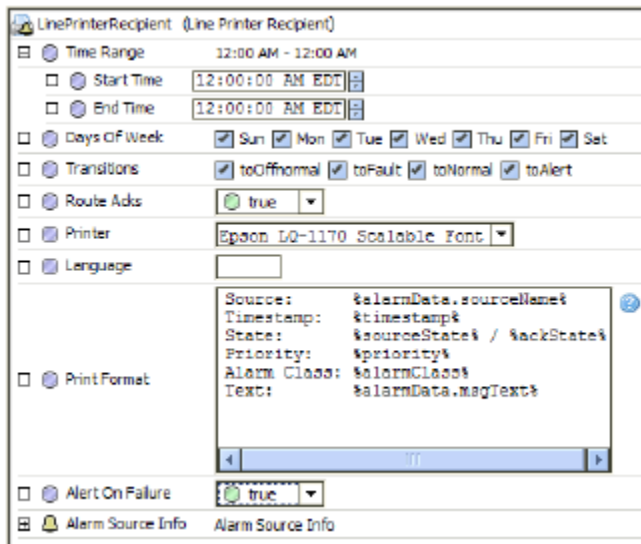
Property	Value	Description
Time Range	Start Time and End Time	Start Time sets the time of day to begin the function (for example, trigger schedule, alarm event)
Days of the Week or Days of Week		
Transitions	Option boxes	Allow selection of specific alarm transitions to display in the console. Only those transitions that are selected will be displayed in the console - even though the alarms are still saved into the alarm history.
Route Acks	true or false	Enables and disables the routing of alarm acknowledgements to the recipient.
Status [component]	text	Read-only field. Indicates the condition of the component at last polling. <ul style="list-style-type: none"> <li>{ok} indicates that the component is polling successfully.</li> <li>{down} indicates that polling is unsuccessful, perhaps because of an incorrect property.</li> <li>{disabled} indicates that the <b>Enable</b> property is set to false.</li> <li>fault indicates another problem.</li> </ul>
Fault Cause	text	Read-only field. Indicates why the network, component, or extension is in fault.
Default Time Range	drop-down list	Selects which records to display based on the date.

## alarm-LinePrinterRecipient

This component prints alarms to a lineprinter that is attached to a station running on a Windows platform, or to a remote (networked) printer known to its Windows OS. To access this property sheet right-click the LinePrinterRecipient component in the Nav tree and click **Views→Property Sheet**.

Alerts may be generated if the printing of an alarm fails, but the line printer recipient does not print alarms that it generates itself. The station must have permission to print on any printer chosen (which is typical).

A **PrinterRecipient** component is also available. It provides more formatting options, applicable to most modern printers.



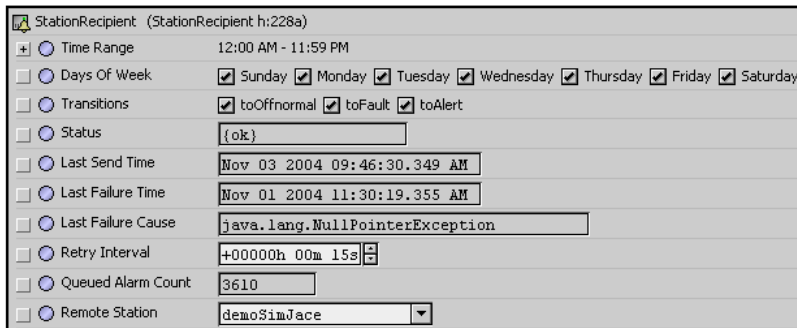
Property	Value	Description
Time Range	Start Time and End Time	Start Time sets the time of day to begin the function (for example, trigger schedule, alarm event)
Days of the Week or Days of Week		
Transitions	Option boxes	Allow selection of specific alarm transitions to display in the console. Only those transitions that are selected will be displayed in the console - even though the alarms are still saved into the alarm history.
Route Acks	true or false	Enables and disables the routing of alarm acknowledgements to the recipient.
Printer	drop-down list	Shows the printers that are available (both locally attached and remotely networked) through the host platform's Windows operating sys on the first line.  <b>NOTE:</b> For more information about how to format this information, click on the help icon to the right of the field.
Language		

Property	Value	Description
Print Format	text	<ul style="list-style-type: none"> <li>Source: %alarmData.sourceName% These field definitions determine what prints for each alarm beginning with the Source, which prints the name of the entity that is responsible for generating the alarm on the first line. For more information about how to format this information, click on the help icon to the right of the field.</li> <li>Timestamp: %timestamp% Prints the time the alarm occurred on the second line.</li> <li>State: %sourceState% / %ackState% Prints the current alarm state on the third line.</li> <li>Priority: %priority% Prints the alarm priority on the fourth line.</li> <li>Alarm Class: %alarmClass% Prints the alarm class on the fifth line.</li> <li>Text: %alarmData.msgText% Prints any text associated with the alarm on the sixth line.</li> </ul>
Alert on Failure	true or false	Enables and disables the generation of an alert if the printer fails to print an alarm.

### alarm-StationRecipient

This component manages the transfer of alarms between the **AlarmService** and a remote station. For example, a station may send alarm notifications to a supervisor station – or any other remote station in the system. The **StationRecipient** is available in the **alarm** palette.

The station recipient component provides a place to specify the location and other details about that remote station. The properties on a station recipient include a field for selecting the remote station, as well as alarm collection options.



Property	Value	Description
Time Range	Start Time and End Time	Start Time sets the time of day to begin the function (for example, trigger schedule, alarm event)
Days of the Week or Days of Week		

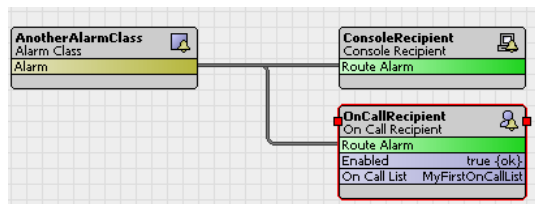
Property	Value	Description
Transitions	Option boxes	Allow selection of specific alarm transitions to display in the console. Only those transitions that are selected will be displayed in the console - even though the alarms are still saved into the alarm history.
Status [component]	text	Read-only field. Indicates the condition of the component at last polling. <ul style="list-style-type: none"> <li>• {ok} indicates that the component is polling successfully.</li> <li>• {down} indicates that polling is unsuccessful, perhaps because of an incorrect property.</li> <li>• {disabled} indicates that the <b>Enable</b> property is set to false.</li> <li>• <i>fault</i> indicates another problem.</li> </ul>
Last Send Time	time	The date and time the system sent the last alarm to the station.
Last Failure Time	time	The date and time of any last failure.
Last Failure Cause	text	The reason for the failure.
Retry Interval	hours and minutes	In the case of a failed alarm transmission, the amount of time the system waits before attempting to send the alarm to the station again.
Queued Alarm Count	number	The number of alarms that are ready to be sent.
Remote Station		Displays a list of eligible remote stations. Valid stations have a valid network connection between the Supervisor and the station. The properties configured in the alarm class in the <b>Alarms</b> component of the remote station's <b>NiagaraNetwork</b> determine which station(s) receive the alarms.

### onCall-OnCallRecipient

This component manages the transfer of alarms between the **AlarmService** and on call contacts. For example, a station sends alarm notifications by email or text message to one or more contacts that are in the on call contact list. You access this component's property sheet by double-clicking the **OnCallRecipient** component.

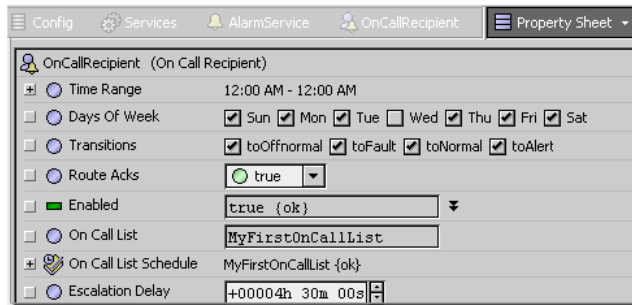
**NOTE:**

Stations can send email by broadband (Niagara outgoing account configuration required) and Sms messages using a GPRS modem.



The **OnCallRecipient** component is linked to an alarm class component that provides a place to specify the scheduling details and other routing options. A special on call scheduling component is contained in the

**OnCallRecipient** component. It provides a standard scheduling view that is similar to other schedule views.



Property	Value	Description
Time Range	Start Time and End Time	Start Time sets the time of day to begin the function (for example, trigger schedule, alarm event)
Days of the Week or Days of Week		
Transitions	Option boxes	Allow selection of specific alarm transitions to display in the console. Only those transitions that are selected will be displayed in the console - even though the alarms are still saved into the alarm history.
Route Acks	true or false	Enables and disables the routing of alarm acknowledgements to the recipient.
Enabled	true or false	Activates and deactivates use of the function.
On Call List	text	Specifies the current active <b>OnCallList</b> and its status. This is the list that the <b>OnCallContact</b> is a member of. A contact may be a member of more than one contact list.
Escalation Delay	hours:minutes:seconds	Sets the time to wait for an alarm to be acknowledged by an <b>OnCallContact</b> before escalating the alarm to the next contact in the <b>OnCallList</b> .

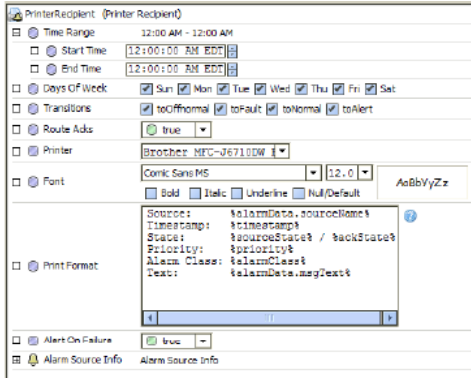
## alarm-PrinterRecipient

This component can be used to print alarms to most types of printers (including laser printers) attached to a station running on a Windows platform, or to remote (networked) printers known to its Windows OS. It is available in the **Recipients** folder of the alarm module palette.

**PrinterRecipient** differs from the older **LinePrinterRecipient** component, originally intended to work only with line printers, where alarms print without a new page feed on each alarm, and the native font of the target printer is always used.

Like the **LinePrinterRecipient**, **PrinterRecipient** applies to Windows hosted stations only. The printer must be known to the host platform's Windows OS and selected from the printer drop down-list. Alerts may be generated if the printing of an alarm fails, but the printer recipient does not print alarms that it generates itself.

The main differences between the **LinePrinterRecipient** and **PrinterRecipient** are additional font property settings, which allow the selection of font type, size, and various style overrides. Combined with multi-line alarm message text properties that are available in various alarm extensions, the **PrinterRecipient** provides flexibility for alarm printing.



Property	Value	Description
Time Range	Start Time and End Time	Start Time sets the time of day to begin the function (for example, trigger schedule, alarm event)
Days of the Week or Days of Week		
Transitions	Option boxes	Allow selection of specific alarm transitions to display in the console. Only those transitions that are selected will be displayed in the console - even though the alarms are still saved into the alarm history.
Route Acks	true or false	Enables and disables the routing of alarm acknowledgements to the recipient.
Printer	drop-down list	Shows the printers that are available (both locally attached and remotely networked) through the host platform's Windows operating sys on the first line.  <b>NOTE:</b> For more information about how to format this information, click on the help icon to the right of the field.



Property	Value	Description
Print Format	text	<ul style="list-style-type: none"> <li>Source: %alarmData.sourceName% These field definitions determine what prints for each alarm beginning with the Source, which prints the name of the entity that is responsible for generating the alarm on the first line. For more information about how to format this information, click on the help icon to the right of the field.</li> <li>Timestamp: %timestamp% Prints the time the alarm occurred on the second line.</li> <li>State: %sourceState% / %ackState% Prints the current alarm state on the third line.</li> <li>Priority: %priority% Prints the alarm priority on the fourth line.</li> <li>Alarm Class: %alarmClass% Prints the alarm class on the fifth line.</li> <li>Text: %alarmData.msgText% Prints any text associated with the alarm on the sixth line.</li> </ul>
Alert on Failure	true or false	Enables and disables the generation of an alert if the printer fails to print an alarm.

## Types of alarm extensions

Find the alarm extensions in palettes **alarm: Extensions** and **kitControl:Alarm**. This table lists all alarm extension types and the applicable point parents.

Alarm extension type(palette: Folder)	Applies to point types		General description
	Read-only	Writable	
OutOfRangeAlarmExt (alarm: Extensions)	NumericPoint	NumericWritable	Provides alarming based upon numeric alarm high and low limits. Includes configurable deadband.
	—	Any object with single numeric Out	For example, kitControl:Math object "Add"
StringChangeOfValueAlarmExt(alarm:Extensions)	StringPoint	StringWritable	Provides alarming based upon either inclusion or exclusion of the entered string value (or "regular expression," as needed).
	—	Any object with single String Out	For example, kitControl:String object "StringSubString"
BooleanChangeOfStateAlarmExt(alarm:Extensions)	BooleanPoint	BooleanWritable	Provides alarming based upon one of two possible values (states) as an alarm condition.
	—	Any object with single Boolean Out	For example, kitControl: Logic object "And."

Alarm extension type(palette: Folder)	Applies to point types		General description
	Read-only	Writable	
BooleanCommandFailureAlarmExt (alarm:Extensions)	—	BooleanWritable	Provides alarming based upon mismatch between commanded value and actual (sensed) value. Extension has feedbackValue input property for linking.
EnumChangeOfStateAlarmExt (alarm:Extensions)	EnumPoint	EnumWritable	Provides alarming based upon one of multiple possible values (states) as an alarm condition.
EnumCommandFailureAlarmExt (alarm:Extensions)	—	EnumWritable	Provides alarming based upon mismatch between commanded value and actual (sensed) value. Extension has feedbackValue input property for linking.
StatusAlarmExt (alarm:Extensions)	Any type that accepts extensions	Any type that accepts extensions	Provides alarming based upon any combination of status flags, including overridden, null, etc.
LoopAlarmExt (kitControl:Alarm)	—	LoopPoint	Sliding alarm limit for Loop-Point based upon controlled process deviation from setpoint.
ElapsedActiveTimeAlarmExt (kitControl:Alarm)	BooleanPoint with DiscreteTotalizerExt	BooleanWritable with DiscreteTotalizerExt	Provides alarming based upon accumulated runtime (elapsed active time). References a specific DiscreteTotalizerExt under same parent point.
	—	any object with single Boolean Out (also with a DiscreteTotalizerExt)	For example, kitControl: Logic object "And."
ChangeOfStateCountAlarmExt (kitControl:Alarm)	BooleanPoint with DiscreteTotalizerExt	BooleanWritable with DiscreteTotalizerExt	Provides alarming based upon accumulated COS (change of states). References a specific DiscreteTotalizerExt under same parent point.
	—	any object with single Boolean Out (also with a DiscreteTotalizerExt)	For example, kitControl: Logic object "And"

## alarm-AlarmSourceExt

This component is the abstract super-class of all Baja control alarming algorithms. It is available in the alarm module. Alarm extensions are contained in the **alarm** palette.

To set up alarming on a component you add an alarm extension to the component's property sheet. Alarm extension types must match their parent component type. For example, an **OutOfRangeAlarmExt** goes with a Numeric point type and a **BooleanChangeOfStateAlarmExt** goes with a Boolean point type.

Each alarm extension shares the same set of properties that allow you to specify the alarming conditions and certain routing options. Alarm extension properties define items such as alarm enable (annunciation) transition types, alarm delay times, associated alarm class, and alarm display text for different transition types. You define the actual alarm limits or state(s) in properties in the extension's "**Offnormal Algorithm**" slot.

Property	Value	Description
Alarm Inhibit	true or false	<p><code>true</code> prevents all alarm generation due to any transition or state change, thus preventing unintended alarms in after-hours situations when a piece of equipment is turned off. <b>Inhibit Time</b> qualifies this behavior.</p> <p>For example, if set to <code>true</code> and an Offnormal state is reached, a <code>toOffNormal</code> status is not communicated. When the state returns to Normal, a <code>toNormal</code> status also is not communicated.</p> <p>A difference between <b>Alarm Inhibit</b> and <b>Alarm Delay</b> is that the former is a boolean value (true/false) and may be controlled by another device (for example, the ON/OFF value of a fan).</p> <p><code>false</code> allows alarm generation. This value prevents alarms from being inhibited (even if an <b>Inhibit Time</b> is set).</p>
Inhibit Time	hours minutes seconds	<p>Controls the length of time that the current Alarm Inhibit state remains in effect after an Alarm Inhibit state change.</p> <p>When an <b>Alarm Inhibit</b> value changes from <code>true</code> to <code>false</code>, alarm generation continues to be inhibited for the time specified by the value set for <b>Inhibit Time</b></p> <p>When an <b>Alarm Inhibit</b> value changes from <code>false</code> to <code>true</code>, alarm generation may continue to be inhibited for a time that is dependent on the point type. For discrete points, the system increases the <b>Inhibit Time</b> value by a factor of three. If the point is a numeric point, nothing changes.</p>
Alarm State	NormalLow Limit-High Limit orFault	Displays the current state of the alarm s
Time Delay	hours: minutes: seconds	<p>Displays the minimum time period that an alarm condition must exist before the object alarms. In other words, the object status must meet the alarm criteria for a continuous period equal to or greater than defined in the this property before an alarm is generated. <b>Time Delay</b> provides a way to prevent nuisance alarms that may be caused by a momentary change in a state value (Normal, Low Limit, High Limit).</p> <p><b>NOTE:</b> <b>Time Delay</b> does not affect alarms generated by a fault. There is no delay when transitioning in or out of a Fault generated alarm.</p>
Time Delay to Normal	hours: minutes: seconds	Sets the minimum time period that a normal condition must exist before the object may return to normal status.
Alarm Enable	toOffnormal or toFault	<p><code>toOffnormal</code> turns on the ability of the alarm to transition from normal to the alarm state Offnormal.</p> <p><code>toFault</code> turns on the ability of the alarm to transition from normal to the alarm state Fault.</p>
To Offnormal Times	text	<ul style="list-style-type: none"> <li><b>Alarm Time</b> (defaults to null, which means that the event has not occurred)</li> <li><b>Ack Time</b> (defaults to null) Displays the time that the alarm was acknowledged.</li> </ul>

Property	Value	Description
		<ul style="list-style-type: none"> <li>• <b>Normal Time</b> (defaults to null) Displays the time that the To Normal event occurred.</li> <li>• <b>Count</b> (defaults to zero (0)) Displays the total number of Offnormal events.</li> </ul>
To Fault Times	text	<p><b>Alarm Time</b> (defaults to null, which means that the event has not occurred) displays the time that the To Fault event occurred.</p> <p><b>Ack Time</b> (defaults to null) displays the time that the alarm was acknowledged.</p> <p><b>Normal Time</b> (defaults to null) displays the time that the To Normal event occurred.</p> <p><b>Count</b> (defaults to zero (0) ) displays the total number of Off-normal events.</p>
Time in Current State	hours: minutes: seconds	Displays the elapsed time since the component transition to the current state occurred.
Source Name	%parent.display-Name% (default)	Displays the name of the alarm source. If you use the default script setting, the source name field shows the display name of the alarm extension parent. You can edit this script or type in a multi-line literal string to display.
To Normal Text	text	The text to display when the component transitions to a Normal status. When applicable, text entered for <b>Fault Algorithm</b> , <b>High Limit Text</b> and/or <b>Low Limit Text</b> may override this text.
Hyperlink Ord or Hyperlink	Ord, BQL Query or path	Associates an ord, BQL query or path with an alarm state on the component. When an alarm is reported in the console, the Hyperlink button activates. Clicking this button links to the location you specify here.
Sound File	ord	The path to a sound file that plays when the current component is in an alarm state. Use the folder icon to browse to the file. Click the arrow icon to the right of the folder icon to test the path.
Alarm Icon	ord	Defines the path to a graphic file to add to the display in the timestamp column of the alarm table in the Console Recipient view.
Alarm Instructions	text	Opens a window in which you can provide customized instructions to the building attendant concerning how to handle the alarm.
Offnormal Algorithm	additional properties	Displays Offnormal options that depend on the alarm extension.
Ordinal	read-only	Provides a unique identifier for the particular <b>OnCallList</b> . The <b>OnCallService</b> tracks the next free ordinal number.
Alarm Class	List, console column, or field or %alarmClass% on a report.	Specifies the alarm routing option for the component.
Meta Data [alarms]	text	Allows you to enter new facets for the extension.

## alarm-BooleanChangeOfStateAlarmExt

This extension implements a change of state alarm detection algorithm for Boolean objects as described in BACnet Clause 13.3.2. It is available in the **Extensions** folder of the **alarm** palette.

## alarm-StringChangeOfValueAlarmExt

This extension generates an alarm upon inclusion or exclusion of a particular string value, or more accurately, regular expression (regexp) of a point's Out slot (string type). This alarm extension is available in the **Extensions** folder of the **alarm** palette.

By default, matching is case sensitive, but this is attribute may be configured using the **Case Sensitive** property in the extension's **Offnormal Algorithm** and **Fault Algorithm** container slots.

In addition to the standard alarm properties, this extension supports these properties.

Property	Value	Description
<b>Expression</b>	a value of: .*	This is the regexp value for any text.
<b>Normal On Match</b>	true, false	
<b>Case Sensitive</b>	true (default), false	Matching defaults to case sensitive.

Thus, by default status remains `ok` until an edit is made to one or both properties above.

### Simple string example

A hospital emergency room desires an alarm created whenever the moon enters a "full moon" phase. A **StringWritable** is created and given a **StringChangeOfValueAlarmExt**. In this extension:

- In the **Offnormal Algorithm's Expression** property, the following string is entered: `Full Moon`.
- The **Offnormal Algorithm's Normal On Match** is set to `false`, and **Case Sensitive** is left at `true`.

In the station's **WeatherService**, a **WeatherProvider** has a **MoonPosition** component, which serves as the link source. A link is made from the **MoonPosition's Phase** property to the **In16** slot of the **StringWritable**. On all phases of the moon but one, the **StringWritable** has a normal status. When **MoonPosition's** phase changes to `Full Moon`, the **StringWritable** alarms, and remains in alarm until the next moon phase (`Waning Gibbous`).

**NOTE:** If the **Expression** string entry was simply: `Moon`, alarms would occur during both phases that include the string "Moon", namely "Full Moon" and "New Moon".

### Regex examples

The **Expression** property in both the **Offnormal Algorithm** and **Fault Algorithm** containers can process a simple string value, as in the example. The **Expression** property also processes a value using regular expression (regexp) syntax. This provides even more flexibility, such as with use of "or" operators, among others.

Regex syntax is beyond the scope of this document, but a few regexp examples are listed below:

- Contains the word "alarm":  
`(.*) (alarm) (.*)`
- Contains the word "offnormal" or "fault":  
`(.*) (offnormal) | (fault) (.*)`
- Eight "1" or "0" characters, with the fourth and eighth characters being 1:  
`(1|0){3}(1)(1|0){3}(1)`
- Empty text:

^\$

- Any text:

.\*

This is the default **Expression** property value, that is in an extension copied from the **alarm** palette.

## alarm-FaultAlgorithm

This component is the super-class of all fault detection mechanisms and contains properties that specify fault conditions. The default implementation does not generate any toFault alarms. A **FaultAlgorithm** is under each type of alarm extension, along with an **OffnormalAlgorithm** container.

## alarm-EnumChangeOfStateAlarmExt

This extension implements a change of state alarm detection algorithm for enum objects as described in BACnet Clause 13.3.2. Each algorithm instance defines a set of enumerated values that should be considered offnormal conditions and, therefore, should generate an alarm. This alarm extension is available in the **Extensions** folder of the **alarm** palette.

## alarm-EnumCommandFailureAlarmExt

This extension implements a command failure alarm detection algorithm for enum objects as described in BACnet. If the feedback and output values of the enum point are not equal for more than **timeDelay**, the system generates an offnormal alarm. This alarm extension is available in the **Extensions** folder of the **alarm** palette.

## alarm-OffnormalAlgorithm

This super-class of algorithm extension checks for off normal conditions. You access this extension under each type of alarm extension along with a **FaultAlgorithm** container.

This extension's properties specify which alarm conditions to check for.

## alarm-OutOfRangeAlarmExt

This extension implements a standard out-of-range alarming algorithm, and applies to points with a status numeric output. This alarm extension is available in the **Extensions** folder of the **alarm** palette.

## Algorithm properties

These properties are unique to the **OutOfRangeAlarmExt**.

Property	Value	Description
<b>Fault Algorithm, High Limit</b>	true, false	Enable and disable high limits.
<b>Low Limit</b>	true, false	Enable and disable low limits.
<b>Deadband</b>		
<b>High Limit Text</b>		
<b>Low Limit Text</b>		
<b>Offnormal Algorithm, High Limit</b>	true, false	Enable and disable high limits.
<b>Low Limit</b>	true, false	Enable and disable low limits.
<b>Deadband</b>		

Property	Value	Description
High Limit Text		
Low Limit Text		

### **alarm-StatusAlarmExt**

This extension provides alarming based upon any combination of status flags, and applies to all points and objects that accept extensions. This alarm extension is available in the **Extensions** folder of the **alarm** palette.





# Chapter 5 Plugins (views)

## Topics covered in this chapter

- ◆ Alarm buttons
- ◆ Alarm Console
- ◆ Alarm extension manager
- ◆ Alarm Class Summary view
- ◆ Alarm Database Maintenance view
- ◆ Alarm Db view
- ◆ Instructions Manager view
- ◆ On Call List Manager view
- ◆ On Call Contact Manager view
- ◆ On Call User Report view

Plugins provide views of components and can be accessed in many ways. For example, double-click a component in the Nav tree to see its default view. In addition, you can right-click on a component and select from its **Views** menu.

For summary documentation on any view, select **Help→On View (F1)** from the menu or press **F1** while the view is open.

## Alarm buttons

The following alarm controls and indicators are common to several alarm views.

Button	Value	Description
Acknowledge	button	Recognizes each selected alarm.
Hyperlink	button	Changes the current view to the hyperlinked target associated with the selected alarm. If no hyperlink is associated with the alarm, the Hyperlink button is not available.
Notes	button	Displays the <b>Notes</b> dialog box for the purpose of adding a note to the selected alarm or alarms.
Silence	button	Stops the audible notification associated with the selected alarm.
Filter	button	Opens the Filters window, which allows you to limit the alarms that display to only those of interest. The button name, "Filter" changes from black to red as a reminder that alarms are being filtered.
Close	button	Saves and exits the current dialog.

## Alarm Console

This view of the console recipient displays all the alarms that have been routed to the alarm console. To open this view, right-click an **alarmRecipient** under the **AlarmService** and click **Views→ Alarm Console**.

Timestamp	Source State	Ack State	Ack Required	Source
Nov 2 2004 2:25:39 PM	Normal	0 Acked / 7 Unacked	true	
Nov 2 2004 2:25:27 PM	Normal	0 Acked / 6 Unacked	true	

As with other tables, you can show or hide columns using the **Table Options** menu in the top right corner of the table.

Timestamp	Source State	Ack State	Source	Alarm Class	Priority	Msg Text
27-May-05 2:24:44 PM EDT	Offnormal	Acked	AlarmDemo	defaultAlarmClass	50	
27-May-05 2:23:16 PM EDT	Normal	Unacked	AlarmDemo	defaultAlarmClass	220	
27-May-05 2:23:01 PM EDT	Normal	Unacked	AlarmDemo	defaultAlarmClass	220	
27-May-05 2:22:46 PM EDT	Normal	Unacked	AlarmDemo	defaultAlarmClass	220	
27-May-05 2:22:32 PM EDT	Normal	Unacked	AlarmDemo	defaultAlarmClass	220	
27-May-05 2:22:15 PM EDT	Normal	Unacked	AlarmDemo	defaultAlarmClass	220	
27-May-05 2:22:01 PM EDT	Normal	Unacked	AlarmDemo	defaultAlarmClass	220	

The alarm console manages alarms on a per-point basis. Each row in the table is the most recent alarm from a point.

To sort the alarms in order of any column, press the **column bar** (once for ascending, twice for descending).






To view all current alarms from a particular point, double-click a row in the table. This opens the **Open Alarm Sources** view.

## Viewing Alarms

To view all the current alarms or to get more details about a particular alarm from that point, use the **Alarm Sources** view and the associated window displays. The export toolbar icon is available on the toolbar when the **Alarm Extension Manager** view is open. Color coded icons provide a visual indication for each alarm:

- 🚨 indicates that the point is in alarm and the alarm is unacknowledged.
- 🟢 indicates that the point is in alarm and the alarm has been acknowledged.
- 🟡 indicates that the point is no longer in alarm, and the alarm has not been acknowledged.

## Managing alarms

Command	Icon	Description
Acknowledge		Allows you to recognize the currently selected alarm(s).
Hyperlink		Allows you to open the alarm URL.
Notes		Allows you to add explanatory text to a specific alarm.
Silence		Allows you to quiet the sound issued by the currently selected alarm(s).
Filter		Allows you to limit the alarms displayed.

## Columns

Column	Value	Description
Ack Required	true or false	The alarm must be acknowledged.
Ack Time	hours:minutes:seconds	Displays the time that the alarm was acknowledged (if applicable).
Ack State	Acked or Unacked	Indicates if the alarm has been acknowledged.
Alarm Class	List, console column, or field or %alarmClass% on a report.	Specifies the alarm routing option for the component.
Alarm Data	read-only	Presents a detailed list of alarm data, including this information: Status toState msgText Count fromState Timezone
Alarm Transition	text	Displays the last transition type of the alarm.
Msg Text		
Normal Time or NormalTime	date and time	Displays the date and time (if applicable) that the alarm state returned to normal.
Priority [on-call contact]	1–255 for each transition, default: 255; %priority% on a report	Specifies the order in which the <code>OnCallService</code> sends alarm notifications to the <code>OnCallContact</code> . Priority levels are indicated graphically by colors and are set up using the alarm options dialog box. The contact with the lowest number (highest priority) receives notification first. An alarm that is not acknowledged within the designated time is forwarded to the next contact in the list.  <b>NOTE:</b> Contacts may share the same Priority number. The <code>OnCallService</code> sends an identical notification to all contacts that have the same priority number
Source	%alarmData.sourceName%	Displays the path to the point that is generating the alarm.

Column	Value	Description
		<b>NOTE:</b> For how to format this information on a report, click on the help icon to the right of the field.
Source State or sourceState	NormalHigh Limit	The status of the entity at the time the event, such as an alarm, occurred.
Timestamp	hours:minutes:seconds%timestamp% (on a report)	Specifies the date and time the event occurred.
User [alarms]	Drop-down list	Identifies the person that acknowledged the alarm. An unacknowledged alarm displays "unknown."
Uuid	read-only	Displays the Unique Universal Identifier (UUID) the system uses to uniquely identify the alarm record.
Last Update	read-only	Displays the time the system most recently updated the alarm.





### Buttons

Button	Value	Description
Acknowledge	button	Recognizes each selected alarm.
Hyperlink	button	Changes the current view to the hyperlinked target associated with the selected alarm. If no hyperlink is associated with the alarm, the Hyperlink button is not available.
Notes	button	Displays the <b>Notes</b> dialog box for the purpose of adding a note to the selected alarm or alarms.
Close	button	Saves and exits the current dialog.

### Alarm Report Dialog





From the alarm console, you can view the **Alarm Report** to see all alarms on the point. Select an alarm and double-click it to see the **Alarm Report**.

You can sort the Alarms in order of any column by pressing the **column bar** (once for ascending, twice for descending). Available commands include:

-  Acknowledge
-  Hyperlink
-  Notes
-  Filter

### Viewing Alarm Record

From the **Alarm Report** window, you can view the alarm record to see all information on the alarm. Select an Alarm and double-click it to see the alarm record. Available commands include:

-  Acknowledge
-  Hyperlink
-  Notes
-  Filter

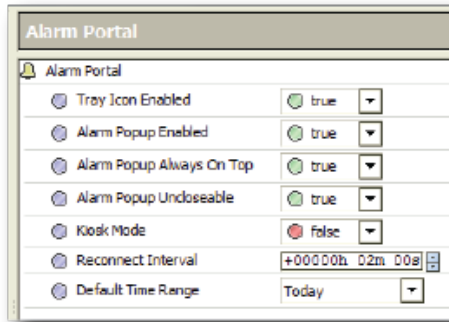
### Clearing alarms

An alarm is cleared from the alarm console when both of the following conditions exist:

- The alarm is acknowledged
- The point is in a normal state

### alarm-AlarmPortalOptions

This component allows you to customize both the appearance and behavior of the alarm console. To access this property sheet, click **Tools**→**Options**, and double-click **Alarm Portal** in the left pane.



Property	Value	Description
Tray Icon Enabled	true or false	When the function is active, turns the display of the function icon in the system tray on and off.
Alarm Popup Enabled	true or false	When the alarm portal is active, turns on and off the display of an alarm popup window.
Alarm Popup Always on Top	true or false	When the alarm portal is active, enables and disables the position of the alarm popup window.
Alarm Popup Unclosable	true or false	When an alarm is active, prohibits and allows the alarm popup window from being/to be closed. When set to false, an alarm popup window may be closed even when an alarm is active.
Kiosk Mode	true or false	When the alarm portal is active, enables and disables the display of the alarm icon in the system tray.
Reconnect Interval	hours:minutes:seconds	Defines the amount of time between alarm portal checks for disconnected alarm consoles. If a console is disconnected, a reconnect is attempted within this period of time.

### OnCallService data in the alarm console

In addition to the default alarm console alarm columns, many on-call data facets are available for optional viewing directly in the alarm console.









Figure 11 Example of on call data facets viewed in the alarm console

Open Alarm Sources						4 Sources / 168 Alarms
Timestamp	Source State	On Call User	On Call Recipient	On Call List	On Call Start Time	
06-Jan-10 3:00:11 PM EST	Offnormal	User2	OnCallRecipient	OnCallList1	06-Jan-10 3:00 PM EST	
06-Jan-10 3:41:25 PM EST	Offnormal	User2	OnCallRecipient	OnCallList1	06-Jan-10 3:41 PM EST	
06-Jan-10 3:34:37 PM EST	Offnormal	User2	OnCallRecipient	OnCallList1	06-Jan-10 3:34 PM EST	
06-Jan-10 1:59:11 PM EST	Offnormal	User2	OnCallRecipient	OnCallList1	06-Jan-10 1:59 PM EST	

You add on-call data columns to the alarm console view by using the **Add Alarm Data Column** window.

## Alarm icons

Alarm icons appear with color coding and symbolic images.

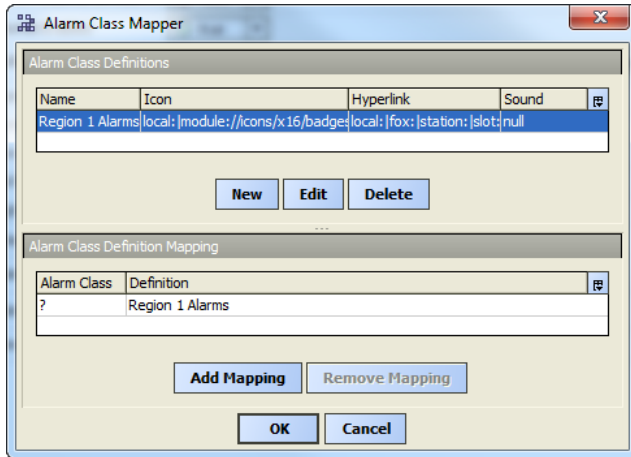
Icon	Value	Description
	red bell	Indicates a problem with the alarm source. The current state of the alarm source is offnormal and the alarm has not been acknowledged.
	orange bell	Indicates that the current state of the alarm source is an alert and is not acknowledged.
	yellow (gold) bell	Indicates that the current state of the alarm source is offnormal and acknowledged.
	green bell	Indicates that the current state of the alarm source is normal and not acknowledged.
	white bell	Indicates that the current state of the alarm source is normal and acknowledged.
	bell (any color) with note bubble	A note alarm icon (it may be any color) indicates that a note is associated with the alarm.
	yellow check mark	An optional icon may display if it is setup in the alarm properties. If included, this graphic appears at the left end of the alarm record row.
	link icon	Indicates that the alarm has a link associated with it. When a link is available the system also activates the <b>Hyperlink</b> button.

## AlarmClassMapper

Alarm class mapping provides a way to assign one or more alarm classes to a common set of alarm-handling parameters. You access this mapper from the alarm console by clicking **Alarm→AlarmClass Mapping ...** or by clicking the chevron next to this property on the **Alarm Console** property sheet.

### Alarm Class Mapper window

One benefit of this type of mapping is that you can import alarms from a variety of alarm classes and have them display, link, or sound in a common manner. You do this by creating alarm class definitions and then associating (mapping) existing alarm classes to these definitions.



The window has two panes:

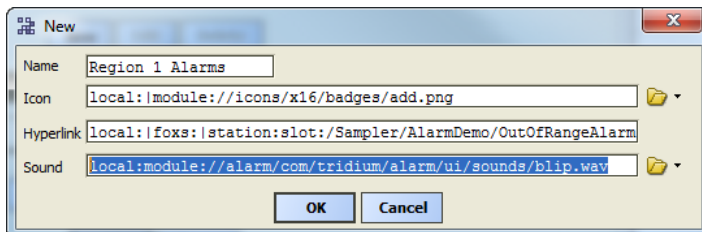
- Upper pane: **Alarm Class Definitions** allows you to create, delete, or edit alarm mapper definitions before assigning them to existing classes.
- Lower pane: **Alarm Class Definition Mapping** assigns any existing alarm classes to the selected definition.

### Buttons

Button	Value	Description
New	button	Opens the window used to create the entity you are working on.
Edit	button	Opens the Edit dialog box. Use this dialog box to edit an entity. Which entity to edit depends on the context within the system.
Delete	button	Removes the selected record from the database.
Add Mapping	button	Opens the <b>Map Alarm Class</b> window, which is where you associate an alarm class with a definition.
Remove Mapping	button	Deletes the association between the selected alarm class and mapping definition.

### Alarm Class Mapper New/Edit window

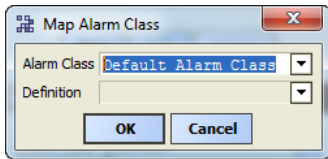
This window creates or edits an alarm class mapper record. To access this window, click the **New** or **Edit** buttons on the **Alarm Class Mapper** window.



Column	Value	Description
Name	text	The name of an existing alarm class.
Icon	ord	
Hyperlink	ord	
Sound	ord	

### Map Alarm Class window

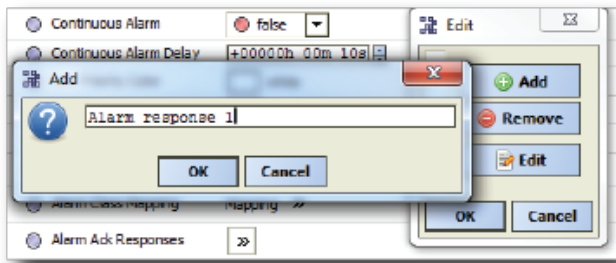
This window associates the alarm class with its definition.



Column	Value	Description
Alarm Class	List, console column, or field or % alarmClass% on a report.	Specifies the alarm routing option for the component.
Definition	text	The name of the definition.

### Alarm Ack Responses

Use this property to create one or more text entries that you can use to populate the **Notes** window when acknowledging an alarm.

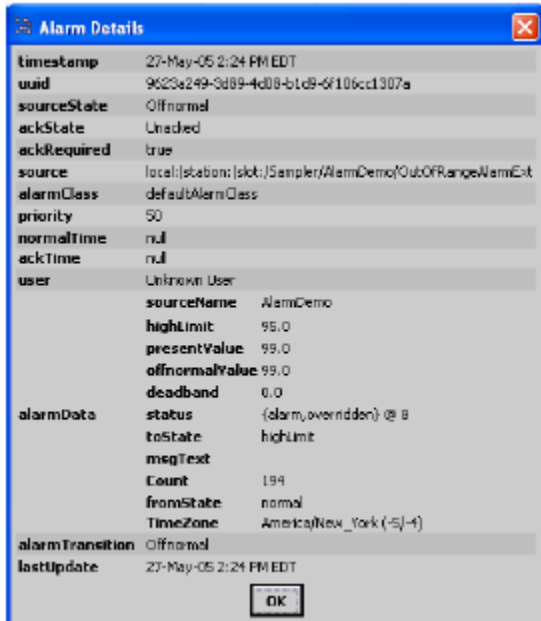


The text holds a short phrase.

### Alarm Details window

The alarm details window displays read-only details about the alarm that is displayed in the **Alarm Database Maintenance** view. Double-clicking on any row in the **Alarm Database Maintenance** view opens this window.



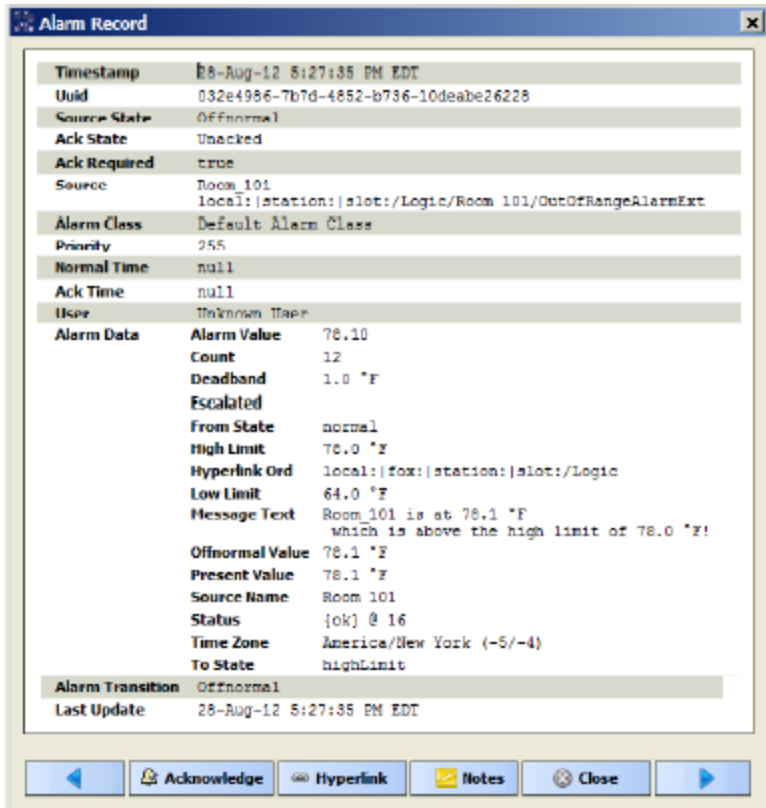


Information	Value	Description
Timestamp	hours:minutes:seconds%timestamp% (on a report)	Specifies the date and time the event occurred.
Uuid	read-only	Displays the Unique Universal Identifier (UUID) the system uses to uniquely identify the alarm record.
Ack State	Acked or Unacked	Indicates if the alarm has been acknowledged.
Ack Required	true or false	The alarm must be acknowledged.
Alarm Class	List, console column, or field or %alarmClass% on a report.	Specifies the alarm routing option for the component.
Priority [on-call contact]	1–255 for each transition, default: 255; %priority% on a report	Specifies the order in which the <code>OnCallService</code> sends alarm notifications to the <code>OnCallContact</code> . Priority levels are indicated graphically by colors and are set up using the alarm options dialog box. The contact with the lowest number (highest priority) receives notification first. An alarm that is not acknowledged within the designated time is forwarded to the next contact in the list.  <b>NOTE:</b> Contacts may share the same Priority number. The <code>OnCallService</code> sends an identical notification to all contacts that have the same priority number
Normal Time or NormalTime	date and time	Displays the date and time (if applicable) that the alarm state returned to normal.
Ack Time	hours:minutes:seconds	Displays the time that the alarm was acknowledged (if applicable).
User [provisioning]	text	The station user that requested the job. This column displays <code>unknown</code> if job was triggered by a linked schedule.

Information	Value	Description
Alarm Data	read-only	Presents a detailed list of alarm data, including this information: Status toState msgText Count fromState Timezone
Transitions	Option boxes	Allow selection of specific alarm transitions to display in the console. Only those transitions that are selected will be displayed in the console - even though the alarms are still saved into the alarm history.
Last Update	read-only	Displays the time the system most recently updated the alarm.

### Alarm Record window

This window shows additional detailed information about a specific point alarm.



This dialog box displays alarm details.

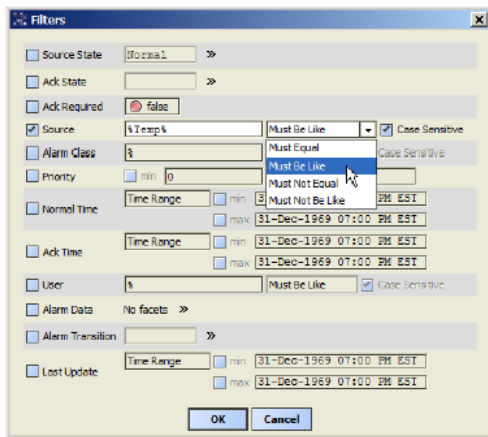
Button	Value	Description
left and right arrows	buttons	If multiple records exist for an alarm, which can happen if repeated alarm transitions occur unacknowledged, arrow buttons may be enabled at the bottom corners of this dialog box: <ul style="list-style-type: none"> <li>Go to previous alarm record (back in time)</li> <li>Go to next alarm record (forward in time)</li> </ul>
Acknowledge	button	Recognizes each selected alarm.
Hyperlink	button	Changes the current view to the hyperlinked target associated with the selected alarm. If no hyperlink is associated with the alarm, the Hyperlink button is not available.
Notes	button	Displays the <b>Notes</b> dialog box for the purpose of adding a note to the selected alarm or alarms.

### Filters window

This window displays the properties you can use to include or exclude alarms from the alarm console. This filter action only affects which alarms display in the alarm console; it cannot be used to edit an alarm record or perform alarm maintenance.

**NOTE:** If you are filtering on a field that uses a wildcard (**Source**, **Alarm Class** or **User**), make sure to put the percent character (%) at both ends of the text string, otherwise, the filter does not work.

Figure 12 Filters window

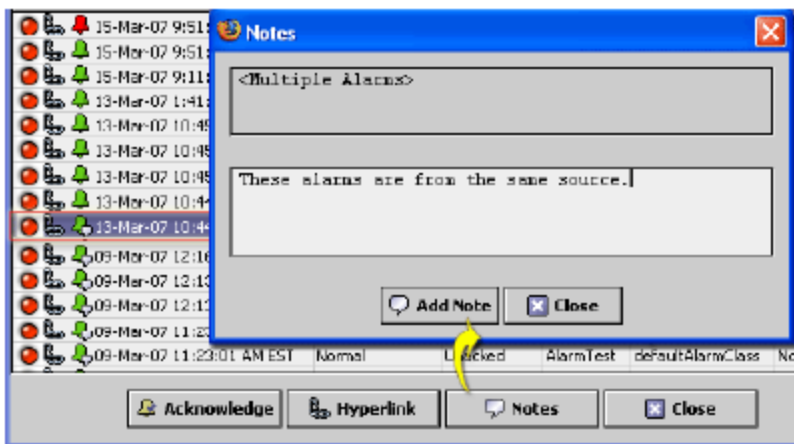


Property	Value	Description
Source State or sourceState	NormalHigh Limit	The status of the entity at the time the event, such as an alarm, occurred.
Ack State	Acked or Unacked	Indicates if the alarm has been acknowledged.
Ack Required	true or false	The alarm must be acknowledged.
Source	%alarmData.sourceName%	Displays the path to the point that is generating the alarm. <b>NOTE:</b> For how to format this information on a report, click on the help icon to the right of the field.
Alarm Class	List, console column, or %	Specifies the alarm routing option for the component.

Property	Value	Description
	alarmClass% on a report.	
Priority [on-call contact]	1–255 for each transition, default: 255; %priority% on a report	Specifies the order in which the <b>OnCallService</b> sends alarm notifications to the <b>OnCallContact</b> . Priority levels are indicated graphically by colors and are set up using the alarm options dialog box. The contact with the lowest number (highest priority) receives notification first. An alarm that is not acknowledged within the designated time is forwarded to the next contact in the list.  <b>NOTE:</b> Contacts may share the same Priority number. The <b>OnCallService</b> sends an identical notification to all contacts that have the same priority number
Normal Time or NormalTime	date and time	Displays the date and time (if applicable) that the alarm state returned to normal.
Ack Time	hours:minutes:seconds	Displays the time that the alarm was acknowledged (if applicable).
User [provisioning]	text	The station user that requested the job. This column displays unknown if job was triggered by a linked schedule.
Alarm Data	read-only	Presents a detailed list of alarm data, including this information: Status toState msgText Count fromState Timezone
Alarm Transition	text	Displays the last transition type of the alarm.
Last Update	read-only	Displays the time the system most recently updated the alarm.

## Notes window

This window adds notes to the alarm record. To access it, click **Notes** at the bottom of the alarm console or **Alarm Record** window. Since the **Alarm Record** window displays single alarm records, notes are added to only one alarm at a time using this method.



Name	Value	Description
Message pane (upper half of the window)	text	Displays the text of any notes already associated with the selected row in the alarm console. If multiple alarms are associated with the selected source, the message pane displays <Multiple Alarms>.
Editor pane (lower half of the window)	text	Provides a text field for adding the note.
Add Note	button	The system adds the new note to all the alarms associated with the selected alarm source.
Close	button	Saves and exits the current dialog.

## Alarm extension manager

The alarm extension manager presents alarm extensions in a table format to make it easy for you to see all the alarm extensions that are associated with the points in your station.

Figure 13 Alarm Extensions Manager

Alarm Source Exts						6 Extensions
Point	Extension	Alarm State	toOffnormal Enabled	toFault Enabled	Alarm Cla	
/Sampler/Float	OutOfRangeAlarmExt	Normal	true	true		Reset Column Widths
/Sampler/Boolean	BooleanChangeOfStateAlarmExt	Offnormal	true	true		Export
/Sampler/Boolean	BooleanCommandFailureAlarmExt	Normal	false	false		
/Sampler/MidPoint	OutOfRangeAlarmExt	Normal	true	false		✓ Point
/Sampler/FloatStatic	OutOfRangeAlarmExt	Normal	false	false		✓ Extension
/Sampler/AlarmDemo	OutOfRangeAlarmExt	Normal	true	false		✓ Alarm State
/Sampler/AlarmMin	OutOfRangeAlarmExt	Normal	true	false		✓ toOffnormal Enabled
/Sampler/AlarmMax	OutOfRangeAlarmExt	Normal	true	false		✓ toFault Enabled
/Sampler/EnumWritable	EnumChangeOfStateAlarmExt	Normal	false	false		✓ Alarm Class
/Sampler/EnumWritable	EnumCommandFailureAlarmExt	Normal	false	false		defaultAlarmC

Extension manager display features include:

- Color coding: A colored background on a row in the alarm extension manager table indicates that the alarm state of the parent component is not Normal.
- Hyperlinking: Double-clicking on any row in the alarm extension manager to change to the property sheet view of the selected alarm extension.

As with other tables, you can show or hide columns and use other standard table controls and options that are provided in the **Table Options** menu, which is located in the top right corner of each table. Also, the export toolbar icon is available on the toolbar when the alarm extension manager view is open.

Column	Value	Description
Point	text	Identifies the point that is the parent of the listed alarm extension.
Extension	text	Identifies the type of extension, for example: <code>OutOfRangeAlarmExt</code> , <code>StatusAlarmExt</code> , and others..
Alarm State	text	Identifies the status of the extension, for example, High Limit or Normal.
toOffnormal Enabled	true or false	Indicates if the <code>toOffnormal</code> property of the extension is enabled (true) or not (false).

Column	Value	Description
toFault Enabled	true or false	Indicates if the <code>toFault</code> property for the extension is enabled (true) or not (false).
Alarm Class	List, console column, or field or % alarmClass% on a report.	Specifies the alarm routing option for the component.

## Alarm Class Summary view

The alarm class summary provides a tabular presentation of data associated with all alarm classes that are assigned to the `AlarmService`.

As with other tables, you can show or hide columns and use other standard table controls and options that are provided in the Table Options menu. The Table Options menu is located in the top right corner of the table and the export toolbar icon is available on the toolbar.

Alarm Class Summary						4 Alarm Classes
Name	Total	Open	In Alarm	Unacked	Last Alarm	
Default Alarm Class	194	117	1	116	25-May-05 9:48 AM EDT	
defaultAlarmClass1	49	24	0	24	25-May-05 9:28 AM EDT	
Total:	243	141	1	140		

**NOTE:** Double-click on any row in the view to change to the property sheet view of the alarm class that you clicked on. You can also use the popup menu to select a view.

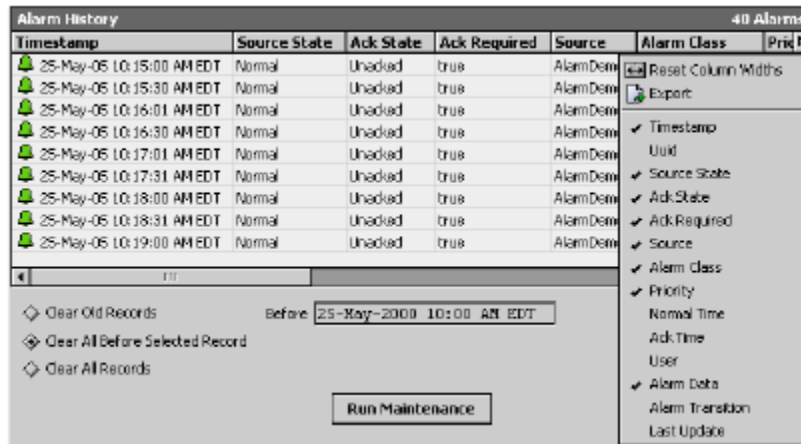
Column	Value	Description
Name	text	Identifies the alarm class.
Total	number	Displays the total number of open alarms associated with the alarm class.
Open	number	
In Alarm	number	Displays the total number of alarms (points) for the alarm class that are currently in the alarm state.
Unacked	number	Displays the total number of unacknowledged alarms associated with the alarm class.
Last Alarm	date and time	Displays the timestamp of the last alarm associated with the alarm class.
alarm.Class.priority		Lists the priority of each alarm transition type, for example: "toOffnoamrl=1," "toFault=60," "toNormal=220," and so on.
To Path String		Identifies, as a string value, the path to the alarm class.

## Alarm Database Maintenance view

This view presents alarm data in a table to make it easy to monitor and edit the alarm database.

The alarm database resides in a station file system under the station's alarm folder.

Figure 14 Alarm Database Maintenance view



The upper portion of the window contains the alarm history table. As with other tables, you can show or hide columns and use other standard table controls and options that are provided in the Table Options menu. The Table Options menu is located in the top right corner of the table and the export toolbar icon is available on the toolbar.

The lower portion of the screen provides controls for managing the history database.

### Alarm History columns

Column	Value	Description
Ack Required	true or false	The alarm must be acknowledged.
Ack Time	hours:minutes:seconds	Displays the time that the alarm was acknowledged (if applicable).
Ack State	Acked or Unacked	Indicates if the alarm has been acknowledged.
Alarm Class	List, console column, or field or % alarmClass% on a report.	Specifies the alarm routing option for the component.
Alarm Class	List, console column, or field or % alarmClass% on a report.	Specifies the alarm routing option for the component.
Alarm Data	read-only	Presents a detailed list of alarm data, including this information: Status toState msgText Count fromState Timezone
Alarm Transition	text	Displays the last transition type of the alarm.
Normal Time or NormalTime	date and time	Displays the date and time (if applicable) that the alarm state returned to normal.
Priority [alarm]	read-only	Displays the priority number of the alarm.

Column	Value	Description
Source	%alarmData.sourceName%	Displays the path to the point that is generating the alarm. <b>NOTE:</b> For how to format this information on a report, click on the help icon to the right of the field.
Source State or sourceState	NormalHighLimit	The status of the entity at the time the event, such as an alarm, occurred.
Timestamp	hours:minutes:seconds%timestamp% (on a report)	Specifies the date and time the event occurred.
User [provisioning]	text	The station user that requested the job. This column displays unknown if job was triggered by a linked schedule.
Uuid	read-only	Displays the Unique Universal Identifier (UUID) the system uses to uniquely identify the alarm record.
Last Update	read-only	Displays the time the system most recently updated the alarm.








### Alarm History maintenance

Option	Value	Description
Clear Old Records and Before property	selection bullet	Deletes alarm records before the date and time you define in the <b>Before</b> property.
Clear All Before Selected Record	selection bullet	Deletes all records with a timestamp that is earlier than the timestamp of the currently-selected record in the table.
Clear All Records	selection bullet	Deletes all records regardless of the date.
Run Maintenance	button	Executes the maintenance action.

### Alarm Db view

This view is similar to the **Alarm Database Maintenance** view. It provides a table of history records that cannot be deleted by the operator.

The alarm database view only requires read access to allow operator-level personnel to view alarms in the alarm console. When a point is no longer in alarm, it is removed from the console. The primary purpose of this view is to provide operators a way to view alarms without requiring admin access to delete alarms from the alarm database.

Alarm History							7 Alarms
Timestamp	Source	Ack State	Ack Req	Source	Alarm Class	Priori	
 09-Nov-07 4:28:32 PM EST	Normal	Acked	false	AlarmTest	defaultAlarmClass	255	
 09-Nov-07 4:33:26 PM EST	Normal	Acked	false	AlarmTest	defaultAlarmClass	255	
 09-Nov-07 4:39:45 PM EST	Normal	Acked	false	AlarmTest	defaultAlarmClass	255	
 09-Nov-07 4:40:15 PM EST	Normal	Unacked	true	AlarmTest	defaultAlarmClass	255	
 19-Nov-07 9:41:43 AM EST	Normal	Unacked	true	AlarmTest	defaultAlarmClass	255	
 19-Nov-07 9:42:00 AM EST	Normal	Unacked	true	AlarmTest	defaultAlarmClass	255	
 19-Nov-07 9:42:07 AM EST	Normal	Unacked	true	AlarmTest	defaultAlarmClass	255	

You can double-click on any row in the alarm database maintenance view table and the Alarm Details dialog box appears.

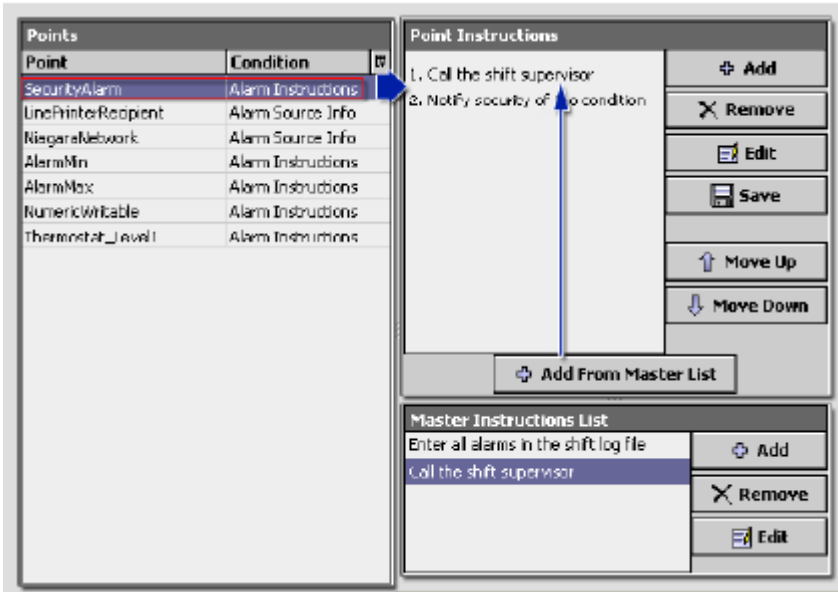


## Columns

Column	Value	Description
Ack Required	true or false	The alarm must be acknowledged.
Ack Time	hours:minutes:seconds	Displays the time that the alarm was acknowledged (if applicable).
Ack State	Acked or Unacked	Indicates if the alarm has been acknowledged.
Alarm Class	List, console column, or field or %alarmClass% on a report.	Specifies the alarm routing option for the component.
Alarm Class	List, console column, or field or %alarmClass% on a report.	Specifies the alarm routing option for the component.
Alarm Data	read-only	Presents a detailed list of alarm data, including this information: Status toState msgText Count fromState Timezone
Alarm Transition	text	Displays the last transition type of the alarm.
Normal Time or NormalTime	date and time	Displays the date and time (if applicable) that the alarm state returned to normal.
Priority [alarm]	read-only	Displays the priority number of the alarm.
Source	%alarmData.sourceName%	Displays the path to the point that is generating the alarm. <b>NOTE:</b> For how to format this information on a report, click on the help icon to the right of the field.
Source State or sourceState	NormalHigh Limit	The status of the entity at the time the event, such as an alarm, occurred.
Timestamp	hours:minutes:seconds%timestamp% (on a report)	Specifies the date and time the event occurred.
User [provisioning]	text	The station user that requested the job. This column displays <code>unknown</code> if job was triggered by a linked schedule.
Uuid	read-only	Displays the Unique Universal Identifier (UUID) the system uses to uniquely identify the alarm record.
Last Update	read-only	Displays the time the system most recently updated the alarm.

## Instructions Manager view

This view displays a standard table-type report that provides a way to view, assign, and edit alarm instructions.



The view is comprised of three primary panes:

- The **Points** pane, located in the left half of the view, displays all points that are currently available for instruction assignment or editing. These points may have instructions assigned to them, or they may have no instructions. they are simply the points that are available.
- The **Point Instructions** pane, located in the top right portion of the view, lists the instructions that are associated with the point or points currently selected in the **Points** pane. You add, remove, reorder, and edit these instructions using the buttons to the right. When selecting multiple points, all must have identical instructions for the instructions to appear in this pane. If there are differences between instructions for the selected points, nothing appears in the pane.
- The **Master Instructions List** displays all master instructions that are available for adding to the **Point Instructions** pane. Master instructions allow you to choose and assign a pre-listed set of instructions to one or more points.

**NOTE:** Always click the **Save** button immediately after making any changes. The Save action applies to all instructions and all points that are selected when you click **Save**. Changes are lost if the screen or if just the pane is refreshed before saving.

### Points section

Column	Value	Description
SecurityAlarm	read-only	Identifies the name of the control point source that is associated with the alarm.
Condition	read-only	Provides the name of the property that holds the alarm instructions.

### Point Instructions buttons

Type	Value	Description
Add	button	Opens the <b>Add</b> window, which you can use to type in the text for an instruction.
Remove	button	Deletes the selected instruction.
Edit	button	Opens the <b>Edit</b> window, which you can use to change the text of an existing instruction.

Type	Value	Description
Save	button	Commits any changes you made to the point instructions. It applies to all instructions and points currently selected. Changes are lost if the screen, or just the pane, is refreshed before saving.
Move Up/Down	buttons	Reorders the instructions in the window.
Add from Master List	button	

### Master Instructions List

Item	Value	Description
list		
Add	button	Opens the Add window, which allows you to enter the text for the Master Instructions list. These instructions are available to be added to individually-selected point instructions using the <b>Add From Master List</b> button.
Remove	button	Removes the instruction from the Master Instructions list.
Edit	button	Allows you to change an instruction in the Master Instructions list.

### On Call List Manager view

This view is the default view of the `OnCallService`. It displays a table of all existing `OnCallLists`. You use this view to create, edit, and delete unique on-call lists.



Double-click on any row to display the list in the **On Call Contact Manager** view.

**NOTE:** If any `OnCallContacts` are added, removed, deleted, reordered, or have any of their properties modified, any alarms that the `OnCallList` is currently handling are resent to the contacts starting at the top of the list, by priority.

## Columns

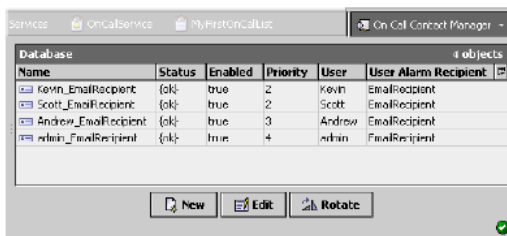
Column	Value	Description
Name	text string	Descriptive text that reflects the purpose of the entity or logical grouping.
Active	Active or Inactive	Displays the current state of the list as defined by the On Call List Schedule. Only one On Call List is active at a time.
Status [component]	text	Read-only field. Indicates the condition of the component at last polling. <ul style="list-style-type: none"> <li>{ok} indicates that the component is polling successfully.</li> <li>{down} indicates that polling is unsuccessful, perhaps because of an incorrect property.</li> <li>{disabled} indicates that the <b>Enable</b> property is set to false.</li> <li>fault indicates another problem.</li> </ul>

## Buttons

Property	Value	Description
New	button	Opens the window used to create the entity you are working on.
Edit	button	Opens the Edit dialog box. Use this dialog box to edit an entity. Which entity to edit depends on the context within the system.
Rotate	button	Reassigns the priority value of each user in the contact list to the next user in the list in a revolving manner. All selected lists are affected when you click this button.

## On Call Contact Manager view

This view is the default view of the `OnCallList` component. The view displays a table listing of all contacts in the selected on-call list.



Double-clicking on any row displays the contact in the **On Call User Report** view.

## Columns

Column	Value	Description
Name	text string	Descriptive text that reflects the purpose of the entity or logical grouping.
Status [component]	text	Read-only field. Indicates the condition of the component at last polling. <ul style="list-style-type: none"> <li>{ok} indicates that the component is polling successfully.</li> <li>{down} indicates that polling is unsuccessful, perhaps because of an incorrect property.</li> <li>{disabled} indicates that the <b>Enable</b> property is set to false.</li> <li>fault indicates another problem.</li> </ul>
Enabled	true or false	Activates and deactivates use of the function.
Priority [on-call contact]	1–255 for each transition, default: 255; %priority% on a report	Specifies the order in which the <b>OnCallService</b> sends alarm notifications to the <b>OnCallContact</b> . Priority levels are indicated graphically by colors and are set up using the alarm options dialog box. The contact with the lowest number (highest priority) receives notification first. An alarm that is not acknowledged within the designated time is forwarded to the next contact in the list.  <b>NOTE:</b> Contacts may share the same Priority number. The <b>OnCallService</b> sends an identical notification to all contacts that have the same priority number
User [general]	Drop-down list	Displays the currently assigned User and provides options for selecting a new User. All Users that are under the <b>UserService</b> are presented as options to select. To view or edit User information, open the <b>User Manager</b> view (the default view of the <b>UserService</b> ).
User Alarm Recipient	text	Displays the assigned recipient for each contact in the table.

## Buttons

Property	Value	Description
New	button	Opens the window used to create the entity you are working on.
Edit	button	Opens the Edit dialog box. Use this dialog box to edit an entity. Which entity to edit depends on the context within the system.
Rotate	button	Reassigns the priority value of each user in the contact list to the next user in the list in a revolving manner. All selected lists are affected when you click this button.

## On Call User Report view

This report is the default view of the `OnCallContact` component. This view provides a tabular presentation of the details associated with any `OnCallList` that the selected user is assigned to.

This view provides each `OnCallContact` with a table of information, which you may configure, and that shows the scheduled times and priorities associated with all of the lists to which the contact is assigned. As with other tables, contacts may show or hide columns and use other standard table controls and options provided in the **Table Options** menu located in the top right corner of the table.

The export function is available using the export icon on the toolbar or by selecting **File→Export** from the main menu.

On Call Recipient	On Call List	Priority	Start	End
OnCallRecipient	MyFirstOnCallList	2	01-Nov-09 12:00 AM EST	01-Nov-09 12:00 AM EST
OnCallRecipient	MyFirstOnCallList	2	02-Nov-09 12:00 AM EST	02-Nov-09 4:00 PM EST
OnCallRecipient	MySecondOnCallList	1	02-Nov-09 6:00 PM EST	02-Nov-09 12:00 AM EST
OnCallRecipient	MyFirstOnCallList	2	03-Nov-09 12:00 AM EST	03-Nov-09 4:00 PM EST
OnCallRecipient	MyFirstOnCallList	2	04-Nov-09 12:00 AM EST	04-Nov-09 4:00 PM EST
OnCallRecipient	MyFirstOnCallList	2	05-Nov-09 12:00 AM EST	05-Nov-09 4:00 PM EST
OnCallRecipient	MyFirstOnCallList	2	06-Nov-09 12:00 AM EST	06-Nov-09 4:00 PM EST
OnCallRecipient	MyFirstOnCallList	2	07-Nov-09 12:00 AM EST	07-Nov-09 12:00 AM EST
OnCallRecipient	MyFirstOnCallList	2	08-Nov-09 12:00 AM EST	08-Nov-09 12:00 AM EST
OnCallRecipient	MyFirstOnCallList	2	09-Nov-09 12:00 AM EST	09-Nov-09 4:00 PM EST
OnCallRecipient	MySecondOnCallList	1	09-Nov-09 6:00 PM EST	09-Nov-09 12:00 AM EST
OnCallRecipient	MyFirstOnCallList	2	10-Nov-09 12:00 AM EST	10-Nov-09 4:00 PM EST
OnCallRecipient	MyFirstOnCallList	2	11-Nov-09 12:00 AM EST	11-Nov-09 4:00 PM EST
OnCallRecipient	MyFirstOnCallList	2	12-Nov-09 12:00 AM EST	12-Nov-09 4:00 PM EST
OnCallRecipient	MyFirstOnCallList	2	13-Nov-09 12:00 AM EST	13-Nov-09 4:00 PM EST
OnCallRecipient	MyFirstOnCallList	2	14-Nov-09 12:00 AM EST	14-Nov-09 12:00 AM EST
OnCallRecipient	MyFirstOnCallList	2	15-Nov-09 12:00 AM EST	15-Nov-09 12:00 AM EST
OnCallRecipient	MyFirstOnCallList	2	16-Nov-09 12:00 AM EST	16-Nov-09 4:00 PM EST
OnCallRecipient	MySecondOnCallList	1	16-Nov-09 6:00 PM EST	16-Nov-09 12:00 AM EST

Column	Value	Description
On Call Recipient	text	This is the name of the On Call Recipient being used to coordinate alarms.
On Call List		Displays the currently active On Call List and its status.
Priority [on-call contact]	1–255 for each transition, default: 255; %priority% on a report	Specifies the order in which the <code>OnCallService</code> sends alarm notifications to the <code>OnCallContact</code> . Priority levels are indicated graphically by colors and are set up using the alarm options dialog box. The contact with the lowest number (highest priority) receives notification first. An alarm that is not acknowledged within the designated time is forwarded to the next contact in the list.  <b>NOTE:</b> Contacts may share the same Priority number. The <code>On-CallService</code> sends an identical notification to all contacts that have the same priority number
Start	date and time	Indicates when the on-call list becomes active.
End	date and time	Indicates when the on-call list ceases to be active.

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