

# Alarming

## Overview

Alarming is a core feature of the Ignition platform. It provides the functionality and flexibility to configure your alarms, provides up-to-date status of alarms, stores alarm history, builds the logic for how, why, and when alarm notifications are delivered, manages alarm notifications for user groups, and sends Email, SMS or Voice notifications. With all these features and functions in Alarming, you can easily create alarms, and design and manage your alarm notifications any way you choose.

You can set up alarms quickly, or you can customize an entire alarm notification process with features such as [pipelines](#), [schedules](#), and [rosters](#). The Alarming features and functions translate to convenience and flexibility for your site's alarms and notifications.

- **Alarm Settings** - There are a host of alarm settings so you can build and change the behavior of your alarm.
- **Alarm Status** - Displays current status of alarms.
- **Alarm Journal** - Stores historical information about alarms.
- **Alarm Notification** - Lets you select the delivery channel for how alarms notifications are sent via [Email](#), [SMS](#), or [Voice](#).
- **Users, Schedules, and Rosters** - Defines the users who will receive alarms based on [user schedules](#) and [on-call rosters](#).
- **Alarm Notification Pipelines** - Lets you define how alarm notifications are sent out and acknowledged.

Alarms can be configured on Tags or OPC items in [SQL Bridge \(Transaction Groups\)](#). The different [Tag types](#) that you can configure alarms on include Memory Tags, Query Tags, Expression Tags, as well as Tags inside of a UDT. You can also put alarms on [System Tags](#) that Ignition inherently provides such as the Gateway Performance, CPU Usage, and more.

## Configuring Alarms

Alarm configuration in Ignition is flexible and highly customizable to your needs. You can configure alarms with one alarm on a Tag or multiple alarms on a Tag. You can add alarms in UDTs so every instance of that Tag will automatically have alarms configured when a new instance of your Tag is created. You can use the alarm settings to create alarms that equal or don't equal a setpoint, above or below a setpoint, between setpoints, outside setpoints, dynamic setpoints, out of range, bad quality, etc. Alarms can be configured for any alarm condition imaginable.

More information about configuring alarms can be found in [Alarming Properties](#) and [Configuring Alarms](#) pages.

The image below shows an alarm configured on an OPC Tag. You can see that an alarm has quite a few properties including alarm mode settings where you can set specific alarm attribute values.

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Tag Editor

Ramp8 > Alarms

OPC Alarm - Outside Setpoints, Criti < OPC Alarm

Main		
Name	OPC Alarm	
Enabled	true	▼ 🔗
Priority	Critical	▼ 🔗
Timestamp Source	System	▼ 🔗
Label		🔗
Display Path		🔗
Ack Mode	Manual	▼ 🔗
Notes		
Ack Notes Required	false	▼ 🔗
Shelving Allowed	true	▼ 🔗
Alarm Mode Settings		
Mode	Outside Setpoints	▼
Low Setpoint	150	🔗
Low Inclusive	true	▼ 🔗
High Setpoint	300	🔗
High Inclusive	true	▼ 🔗
Any Change	false	▼ 🔗
Deadbands and Time Delays		
Deadband	0	🔗
Deadband Mode	Absolute	▼
Active delay (seconds)	0	🔗
Clear delay (seconds)	0	🔗
Notification		
Ack Pipeline		▼ 🔗
Active Pipeline		▼ 🔗
Clear Pipeline		▼ 🔗
Email Notification Properties		
Custom Message		🔗
Custom Subject		🔗
SMS Notification Properties		
Custom Message		🔗

## How to Monitor Alarm Status

Setting up the Alarm Status Table is quick and easy. Drag the [Alarm Status Table](#) component onto your window, and the current alarms are displayed immediately into one view. The Alarm Table is highly customizable and alarms can be configured to show active, unacknowledged, cleared, and acknowledged alarms. You can [Acknowledge](#) or [Shelve](#), and you can [filter on Alarm Status](#) properties, show or hide alarm property information, reorganize columns, or view alarm details, notes, and history of an alarm.

Active Time	Display Path	Priority	Current State
<input checked="" type="checkbox"/> 5/30/19, 11:23 AM	Motors/Motor 4/Amps/Low Amps	Critical	Active, Unacknowledged
<input type="checkbox"/> 5/30/19, 11:25 AM	Motors/Motor 2/Amps/Low Amps	Critical	Active, Unacknowledged
<input type="checkbox"/> 5/30/19, 11:26 AM	Ramp/Ramp8/OPC Alarm	Critical	Active, Unacknowledged
<input type="checkbox"/> 5/30/19, 10:33 AM	Turbine Number 200 located at Livermore, CA	High	Active, Unacknowledged
<input type="checkbox"/> 5/30/19, 10:33 AM	Turbine Number 300 located at Fresno	High	Active, Unacknowledged
<input type="checkbox"/> 5/30/19, 11:13 AM	Motors/Motor 2/Amps/Low Amps	Critical	Cleared, Unacknowledged
<input type="checkbox"/> 5/30/19, 11:14 AM	Motors/Motor 2/Amps/Low Amps	Critical	Cleared, Unacknowledged

Details		Notes
Config Properties		
On Active		
mode	Below Setpoint	
setpointA	30	
Event Value	28	
name	Low Amps	
Event Time	5/30/19, 11:23 AM	
priority	Critical	

Acknowledge    Shelve

## Alarm Status Tags

Ignition provides a set of System Tags to view information about the Ignition server which includes four Tags that count the number of alarms in each state. A quick way to see if any alarms are currently active and get an alarm count is to add a Label component on the Navigation window. The four system alarm states are:

- Active and Unacknowledged
- Active and Acknowledged
- Clear and Acknowledged
- Clear and Unacknowledged

In the **Tag Browser** of the Designer, scroll down to the **System > Gateway > Alarming** folder. You can see all four of the system Tags that Ignition provides. You can also see how many alarms are currently **Active and Aced**, **Active and Unacked**, **Clear and Aced**, and **Clear and Unacked**.

These system Tags can easily be used to visualize all alarms in the system.

Tag	Value	Data Type	Traits
Tags			
System			
Client			
Gateway			
Alarming			
Active and Aced Memory	3	Integer	
Active and Unacked Memory	4	Integer	
Clear and Aced Memory	6	Integer	
Clear and Unacked Memory	40	Integer	
Database			

## How to View Alarm History

The [Alarm Journal](#) stores historical information about alarms in a database. It stores basic data about alarms that have occurred, such as their source and timestamp, associated data on an alarm, and the values of an alarm's properties at the time the event occurred. It captures all status changes for each alarm, as well as acknowledgement to an external SQL database of your choosing. To begin viewing alarm history, all you need to do is create an [Alarm Journal Profile](#) in the Gateway webpage.

Like the Alarm Status Table, the Alarm Journal enables you to [filter on alarm history properties](#). The alarms are color coded so you know what each status represents. The [Date Range](#) is a very common filter type since users typically want to filter for alarm events within a specific period of time.

Event Time	Display Path	Event State	Priority	Current State	Label
5/30/19, 11:45 AM	Motors/Motor 3/Amps/Low Amps	Active	Critical	Active, Unacknowledged	Low Amps
5/30/19, 11:45 AM	Motors/Motor 3/Amps/Low Amps	Ack	Critical	Cleared, Acknowledged	Low Amps
5/30/19, 11:45 AM	Ramp/Ramp8/OPC Alarm	Active	Critical	Active, Unacknowledged	OPC Alarm
5/30/19, 11:45 AM	Ramp/Ramp8/OPC Alarm	Ack	Critical	Cleared, Acknowledged	OPC Alarm
5/30/19, 11:45 AM	Motors/Motor 3/Amps/Low Amps	Active	Critical	Active, Unacknowledged	Low Amps
5/30/19, 11:45 AM	Motors/Motor 3/Amps/Low Amps	Ack	Critical	Cleared, Acknowledged	Low Amps
5/30/19, 11:45 AM	Ramp/Ramp8/OPC Alarm	Active	Critical	Active, Unacknowledged	OPC Alarm
5/30/19, 11:45 AM	Ramp/Ramp8/OPC Alarm	Ack	Critical	Cleared, Acknowledged	OPC Alarm
5/30/19, 11:45 AM	Motors/Motor 3/Amps/Low Amps	Active	Critical	Active, Unacknowledged	Low Amps
5/30/19, 11:45 AM	Motors/Motor 3/Amps/Low Amps	Ack	Critical	Cleared, Acknowledged	Low Amps
5/30/19, 11:44 AM	Motors/Motor 3/Amps/Low Amps	Active	Critical	Active, Unacknowledged	Low Amps
5/30/19, 11:44 AM	Motors/Motor 3/Amps/Low Amps	Ack	Critical	Cleared, Acknowledged	Low Amps
5/30/19, 11:44 AM	Ramp/Ramp8/OPC Alarm	Active	Critical	Active, Unacknowledged	OPC Alarm
5/30/19, 11:44 AM	Ramp/Ramp8/OPC Alarm	Ack	Critical	Cleared, Acknowledged	OPC Alarm
5/30/19, 11:44 AM	Motors/Motor 1/Amps/Low Amps	Active	Critical	Active, Unacknowledged	Low Amps
5/30/19, 11:44 AM	Motors/Motor 1/Amps/Low Amps	Ack	Critical	Cleared, Acknowledged	Low Amps
5/30/19, 11:44 AM	Ramp/Ramp8/OPC Alarm	Active	Critical	Active, Unacknowledged	OPC Alarm

7,287 events

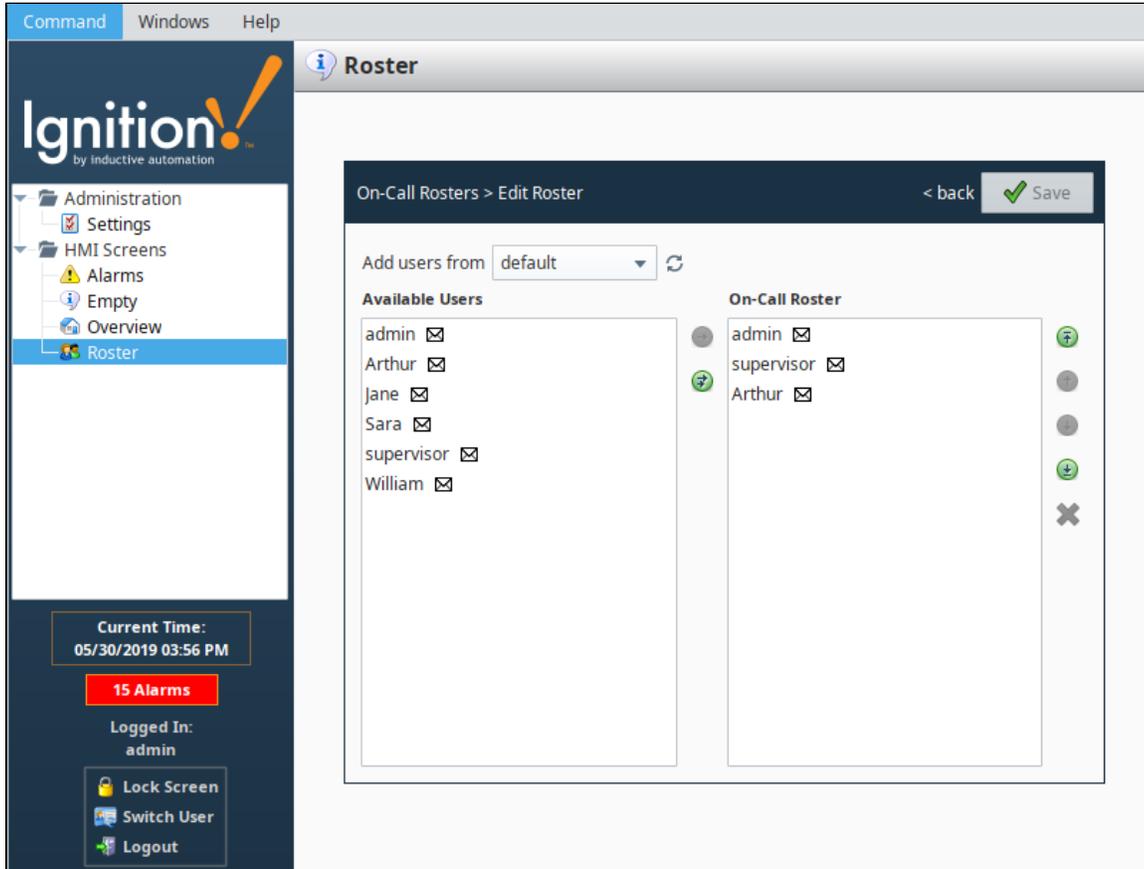
## Alarm Notifications

Alarms can also generate notifications that are delivered to users allowing Ignition to immediately communicate events and problems to your users. Alarm Notification Pipelines control how and when notifications are sent to users. You can select the delivery channel for how alarms are sent: [Email](#), [SMS](#), or [Voice](#). The notification system has access to Ignition's Authentication Profiles so users can easily be added to notification [On-Call Rosters](#). [Schedules](#) can be created allowing users to receive notifications only when on-schedule, so there is no need to worry about notifying a supervisor or manager when they are not on-site, or if it's in the middle of the night. Pipelines coupled with on-call rosters and schedules allow you to build your own custom alarm notification process.

## On-Call Rosters

The [On-Call Roster](#) is a collection of users that are notified when an alarm occurs. When an alarm is triggered, a notification is sent to a designated On-Call Roster where it evaluates the users schedules, and only notifies those users that have an active schedule.

## Roster Management from the Vision Client Window



## Schedules

Schedules define the times of users on-call availability and unavailability. You can set up a schedule for each user in the alarm notification system so users only receive notifications when they have an active schedule.

### Schedule from the Vision Client Window

Command Windows Help

**Ignition**  
by inductive automation

- Administration
  - Settings
- HMI Screens
  - Alarms
  - Empty
  - Overview
  - Roster
  - Schedules**

**Schedules**

Schedules > Edit Schedule < back Save

**Name**  
Operators Schedule  **Observe Holidays**  True

**Description**  
Operators schedule M-F 8am-5pm schedule with a 1 hour lunch break.

**Schedule**

All days  0:00-24:00

Week days  8:00-11:45,12:30-17:00

Monday  0:00-24:00

Tuesday  0:00-24:00

Wednesday  0:00-24:00

Thursday  0:00-24:00

Friday  0:00-24:00

Saturday  0:00-24:00

Sunday  0:00-24:00

**Repetition**

Repeat / Alternate: Off

# Days/Weeks On: 1

# Days/Weeks Off: 1

Starting At: [Dropdown]

**Preview**

< Previous Week of May 27, 2019 Next >

2019	Sun, May 26	Mon, May 27	Tue, May 28	Wed, May 29	Thu, May 30	Fri, May 31	Sat, June 1
1 AM							
2 AM							
3 AM							
4 AM							
5 AM							
6 AM							
7 AM							
8 AM							
9 AM		8:00 AM -					
10 AM		11:45 AM					
11 AM		Available	Available	Available	Available	Available	
Noon							
1 PM		12:30 PM -					
2 PM		5:00 PM					
3 PM		Available	Available	Available	Available	Available	
4 PM							
5 PM							
6 PM							
7 PM							
8 PM							

Current Time: 05/30/2019 04:59 PM

11 Alarms

Logged In: admin

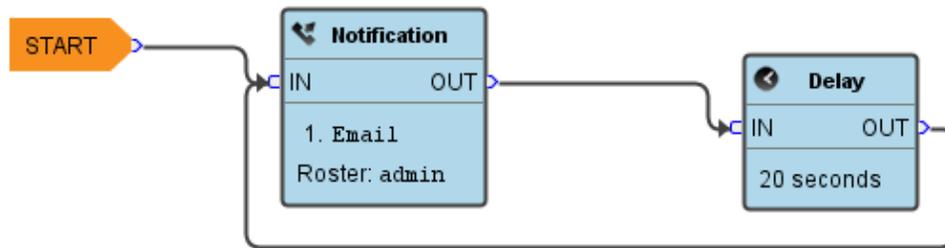
Lock Screen  
Switch User  
Logout

## Alarm Notification Pipelines

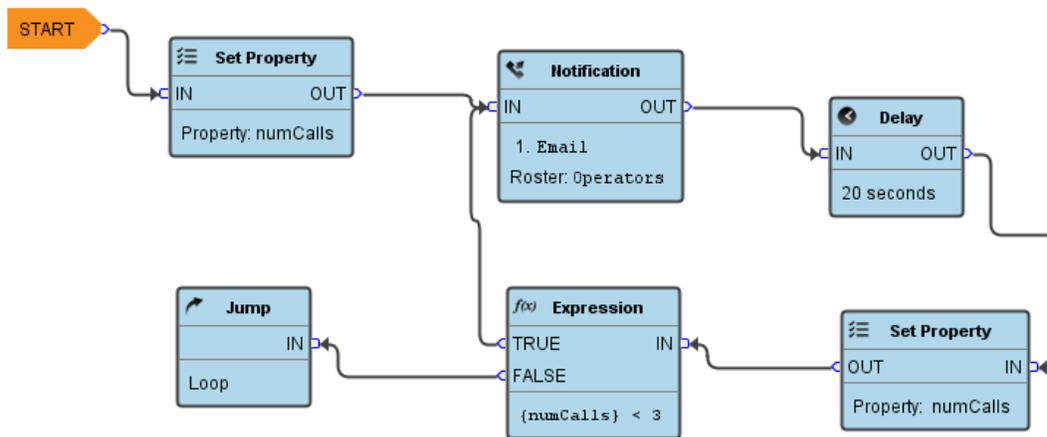
The [Alarm Notification Pipeline](#) feature is an innovative tool that lets you easily create routes for your alarms. By designing your own alarm notification routing, you have control of what happens when an alarm goes active, when an alarm is sent out, and who receives the alarm notification.

The alarm notification pipeline has a simple drag-and-drop interface so you can build various types of alarm logic. Its built-in [pipeline block](#) functionality lets you delay sending alarm notifications, [escalate](#) higher priority alarms to a different group of users, [consolidate](#) multiple alarms so recipients aren't flooded with messages, and distribute specific alarm types to different contact groups.

Alarm notification pipelines can be very simple to very complex. In this simple notification pipeline, when an alarm is triggered, the people listed in the [On-call Roster](#) are notified via Email. If no one acknowledges the alarm in 20 seconds, the alarm notification is routed back to the same users listed in the On-Call Roster.



In this more complex alarm notification pipeline, if an operator doesn't respond to the alarm after three attempts, the pipeline jumps it to another pipeline (possibly an escalation pipeline).



To learn more about building your own pipelines, go to [Alarm Notification Pipelines](#).

#### Related Topics ...

- [Configuring Alarms](#)
- [Using Alarm Status Tags in Vision](#)
- [Alarm Pipeline Designer Interface](#)
- [Pipeline Blocks](#)

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