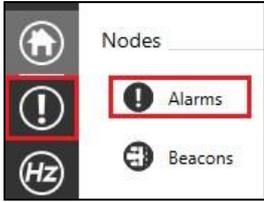| ALARMS	Revision	0.93
	Date	17/02/2025

Alarms overview

In Toolset you can use alarms to notify the driver/team when specific events or conditions are met.

Create an alarm

To create an alarm within a setup, click the **Alarms** node, or use the shortcut on the left of the screen.

Click the **+** button at the top left to create an alarm. You can also import, export, prioritize (top to bottom), and delete alarms.
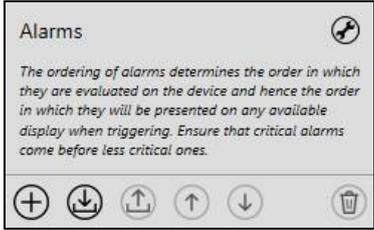
Click the 'wrench' icon to open **Alarm Settings**. You can select the option to acknowledge alarms and the rate at which they are evaluated.

Currently you can only trigger an alarm acknowledgement through a button event, and not a channel.

When an alarm is created, the alarm configurations are displayed on the right.

General

Name: The name of the alarm channel. Use the format 'Alarm_Quantity_Channel_Qualifier' to group all alarms together.

Short Text: The short text used in display configurations.

Long Text: The long text used in display configurations.

Enabled: When this option is selected you can use the alarm you create in Math Channels, Displays, and so on.

Display Channel: When the alarm is on, the value of the channel is displayed on the dash. Select the decimal places (Dps) and the unit.

Manufacturer Status

Refer to **Pi Toolset – Setup Locking** for details about this option.

Conditions

Condition: This option allows you to define under which condition(s) the alarm is triggered. This can refer to a Channel (Oil Pressure, for example) or a Bitfield (Button for example). If a channel is selected, then a valued condition is required. If a bitfield is chosen, then a specific state is required.

Guard Time: The time during which a condition must be true to trigger the alarm.

Re-Trigger Guard Time: The time that must elapse after an alarm reset before it can re-trigger.

Qualifiers: You can add qualifiers to enable or disable alarms. The strategies available are automatically created by Toolset (Car, Engine, Logging, and Moving), or can be created by the user (see **Setups – System Status** for more information).

Acknowledgement

Allow Acknowledge: If selected, the driver can acknowledge the alarm. If unselected, the alarm will always be active or inactive depending on its settings and cannot be over-ridden.

Threshold Adjustment: This option is only available when the **Allow Acknowledge** option is selected. You can change the threshold of the alarm when it is active, and the driver has acknowledged it. For example, if an alarm is set to display when Oil Pressure is low (less than 8 bar) and the **Threshold Adjustment** is Offset 2 bar, then after the alarm is acknowledged, it will not be active again until Oil Pressure is less than 6 bar. You can only reset the threshold adjustment when the car is stopped and powered off, or when the difference between the value and the current threshold is at least twice the threshold adjustment.

In the example of a Low Pressure Oil alarm below, the alarm is active when the channel Oil Pressure is less than 8 bar. It has a Guard Time of 1 second and a Qualifier that the Car must equal Running. The Display Channel is the channel that is associated with the alarm so the driver can see the Oil Pressure. See the next section for details on how to use the alarm.

Alarms are also considered events. When you select from a list of events (for example on the **Fuelling** node, an event is selected for Reset Fuel Used, all alarms are displayed. This can be useful when a condition must be met for a Beacon, Fuelling Reset, and so on.
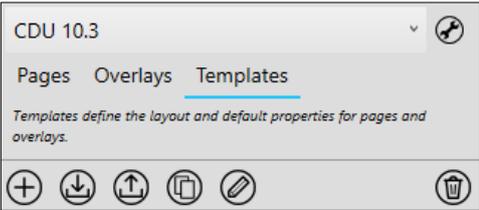
Use an alarm

There are several ways to use an alarm on the display (CDU/CCW). You can use a Channel Control (Display Only), use an Alarm Control, or use an alarm to drive an overlay. Click **Displays (Ethernet)** or use the shortcut on the left.
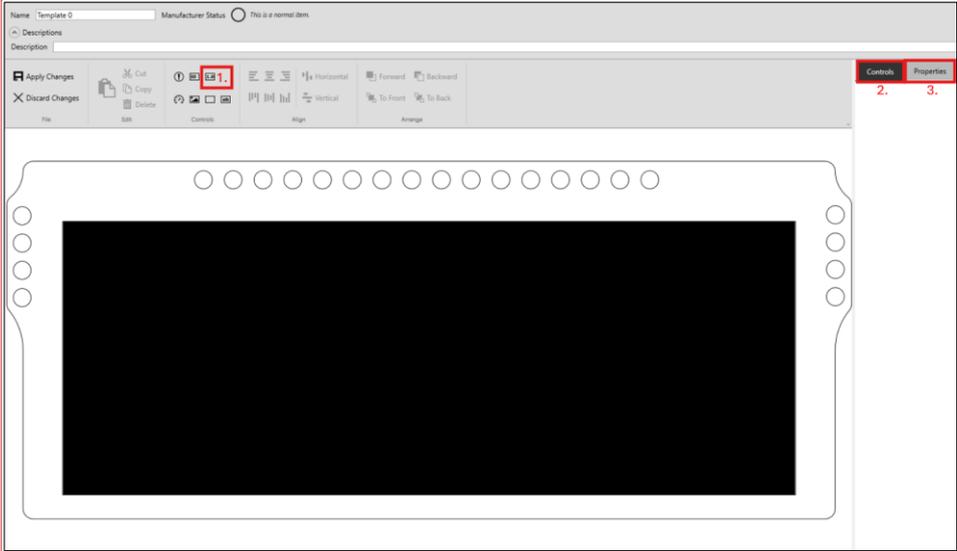
Use a channel control

Click **Templates** to create a new template.

Click the **+** button to open a blank display. To add a channel control, click on the box (1) in **Controls** and drag it to the screen. When you click on the new box, the **Controls** tab (2) is populated with the box name (this can be left as the default). Click **Properties** (3) to open the channel properties.

Commented [RH1]: New image

Commented [RH2]: New image

From the **Properties** tab, navigate to the **Channel** section, and then select the required channel. In this example, Oil Pressure is added. Click **Enable** to select a display only alarm. This is separate from an alarm created in the **Alarms** node and is not displayed in data and is for display purposes only.

At the bottom, there is an option to select the font size, select the channel value colour, and select the alarm value colour. The text and value will flash in the alarm colour when the alarm is active. See **Displays** for more configuration details.

Click **Apply Changes** to save the template. You can use the template for a page or an overlay.

Note: It is recommended that you make templates generic enough to be used more than once if required and make all changes to the page/overlay rather than the template itself, as changes to the template may not propagate to the page/overlay correctly.

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To create a page from a template, click the **+** button on the **Pages** tab from the **Display** node.
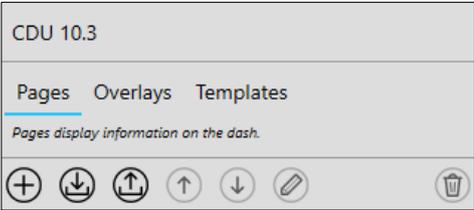

A new window displays all the available templates. Select the required template, and then click the **+** button.
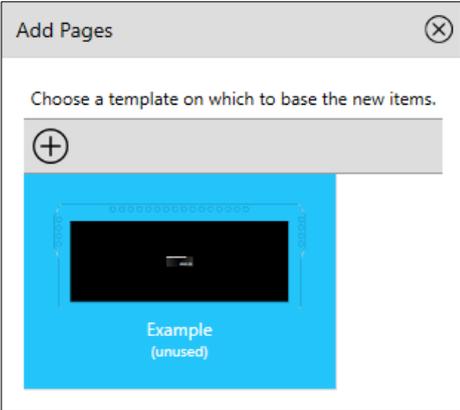
Use an alarm control

Create a new template, as described above, and then add an alarm control (as described below). These are only displayed when the alarm (from the **Alarms** node) is active, effectively functioning as a pop-up alarm. To add an alarm control, click on the box (1) in **Controls**, and then drag it to the screen. When you click on the new box, the **Controls** tab (2) is populated with the box name (this can be left as the default).

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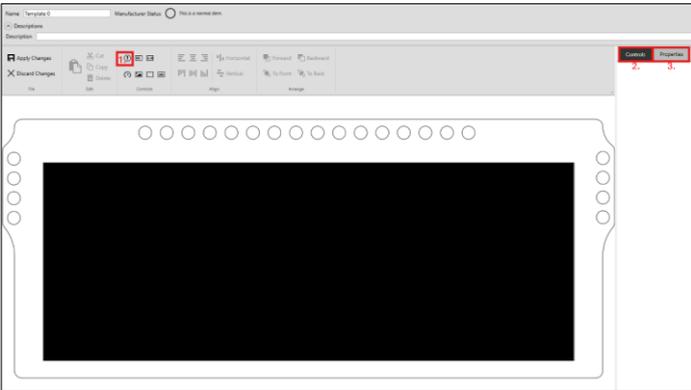
Click **Properties** (3) to open the Alarm properties. This creates an alarm control, like a channel control. Use the **+** to button to add an alarm to the alarm control.

If the background is default, the box is hidden until the alarm is active. Under **Alarm Properties**, the **Display Property** can be the Channel (the 'Display Channel' in the **Alarms** node), Short Text, Long Text, or Channel value. These are configured on the **Alarms** node.
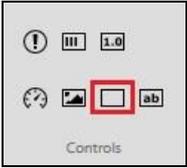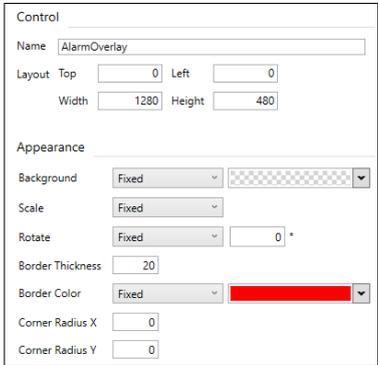
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Use an alarm to drive an overlay

An example of generic overlay is shown. Create a new template, and then add a rectangle.

Click the **Properties** tab and change the **Fill Colour** to transparent (if black is selected, it covers everything on the screen). Change the **Border Color** to the required setting. Set the **Border Thickness** to ~20.

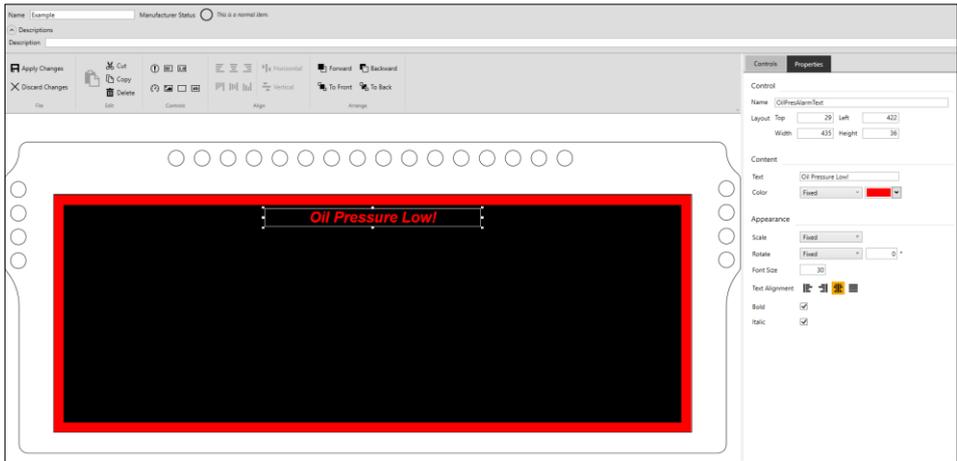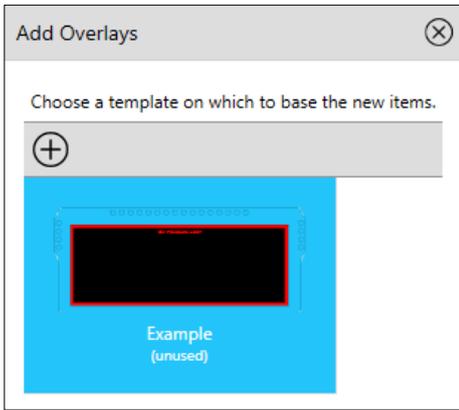Position the rectangle to make a border around the display.
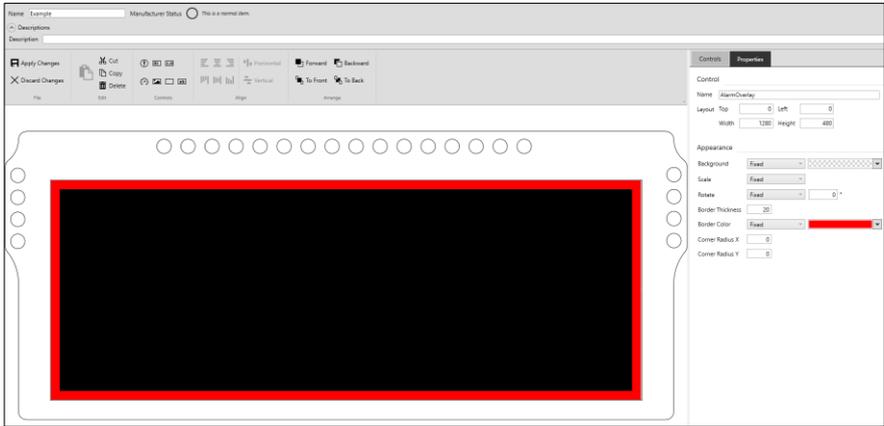
Next, you can add a text box to the screen.

Enter 'Oil Pressure Low!' under **Label** on the **Properties** tab and position the text at the top of the screen.

Save the changes to the template and go to **Overlays**. Click the **+** button to add a template to overlays and select the new template.

Click the 'pencil' icon, and then select to add the alarm previously created. When the alarm is active this overlay appears on the display.

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