



**Critical**  
manufacturing  
an ASM PT company

# Grafana

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### DOCUMENT ACCESS

Public

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# Grafana

*Estimated time to read: 7 minutes*

Manufacturing operations generate a lot of data. Being able to present the most important data in real time and in a visual way, that is clear and easy to read, helps the different stakeholders to understand the current situation and quickly visualize any problem that requires attention.

This is achieved through dashboards (highly visual mechanisms to display different types of data), which are created by combining and configuring different widgets such as reports, queries, resource lists, and charts.

By definition "Grafana is a multi-platform open source analytics and interactive visualization web application. It provides charts, graphs, and alerts for the web when connected to supported data sources. End users can create complex monitoring dashboards using interactive query builders." (Wikipedia)

Using Grafana will allow you to query, visualize, alert on and understand your metrics regardless of where they are stored. Additionally, Grafana provides you with a wide variety of ways to display your data and includes the following visualization formats: tables, timelines, time series, stat, gauge, bar and pie charts.

This document will guide you through the required configurations and set up for the integration of a Grafana dashboard into a UI Page with the **Grafana** widget.

## Warning

Grafana only works in containerized environments.

## Overview

The **Grafana** widget is used within Critical Manufacturing MES but your original Grafana dashboard is initially created in a separate external page.

## Warning

Given that Grafana is a server that can be deployed within the realm of the current customer environment (in a separate container sharing the same network and environment stack) or in an autonomous installation to be used by multiple environments, a configuration key is required to indicate the proper URL to be used for this specific environment. That key is `/Cmf/Guis/Configuration/Urls/Grafana/` and should hold the value for the current Grafana server location (example: `https://grafanaserver.companydomain.com:443/grafana`). If the configuration entry is not filled in, the widget will display an error:

No Grafana® url configured in  
/Cmf/Guis/Configuration/Urls/Grafana/

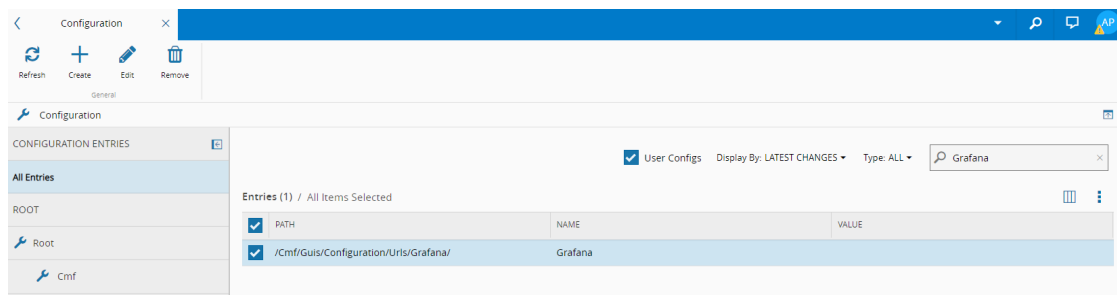
## Setting Up Grafana

To have a functioning **Grafana** widget and be able to deploy a full Grafana dashboard within Critical Manufacturing MES, you have to follow the steps in the table below:

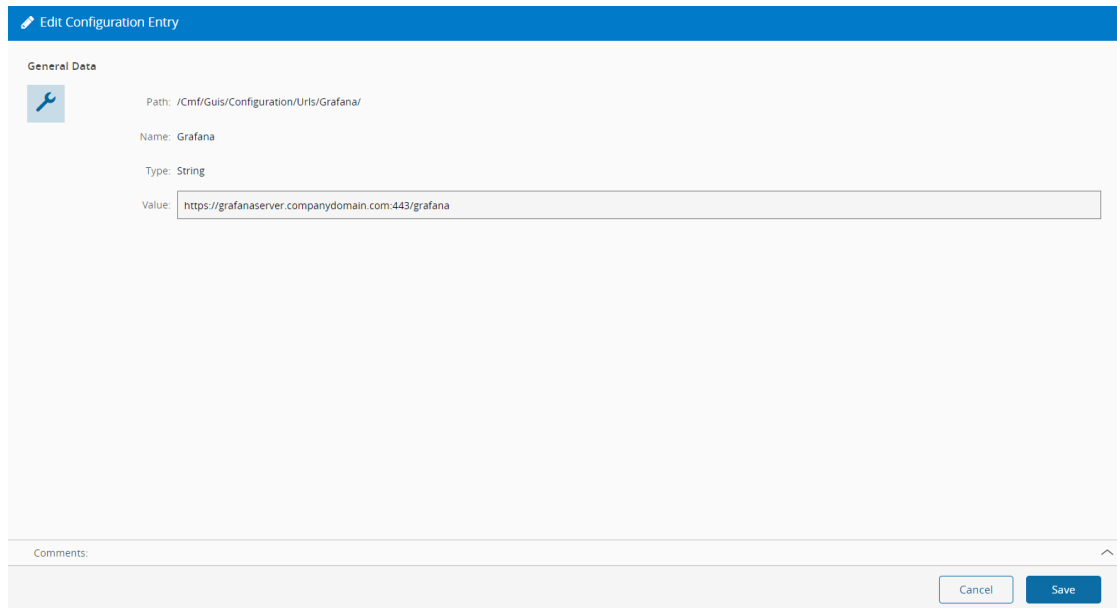
Step Number	Step	Description
1	<b>Configure Grafana</b>	Configure /Cmf/Guis/Configuration/Urls/Grafana/ with the appropriate <b>Value</b> .
2	<b>Create a UI Page</b>	Create a <b>UI Page</b> where you will use the <b>Grafana</b> widget.

### Step 1: Configure Grafana

1. Go to the **Administration** menu and select **Configuration**.
2. Search and select the Grafana path to be able to edit it:



3. Select **Edit** in the top ribbon and enter the **Value** for the current Grafana server:



**Edit Configuration Entry**

**General Data**

Path: /Cmf/Guis/Configuration/Urls/Grafana/

Name: Grafana

Type: String

Value:

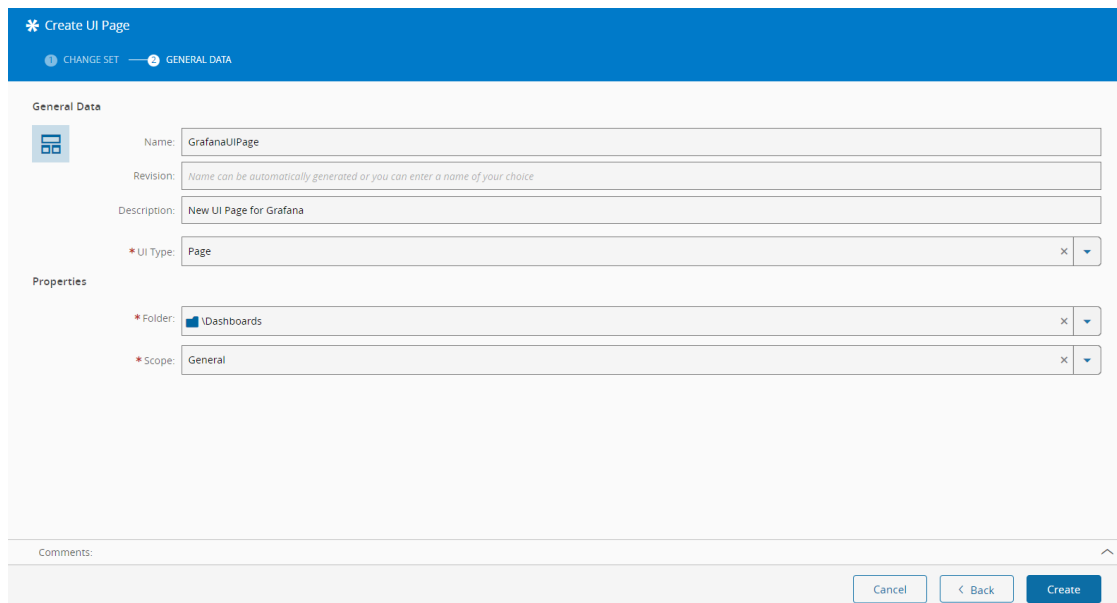
Comments:

Cancel Save

4. Save.

## Step 2: Create a UI Page

1. Create your UI Page:



**Create UI Page**

CHANGE SET GENERAL DATA

**General Data**

Name:

Revision: Name can be automatically generated or you can enter a name of your choice

Description:

\* UI Type:

**Properties**

\* Folder:

\* Scope:

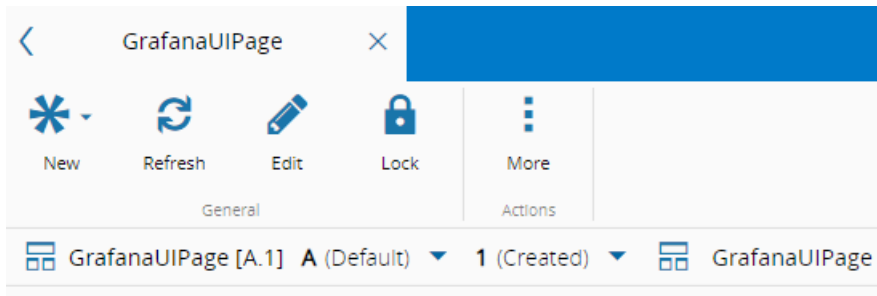
Comments:

Cancel < Back Create

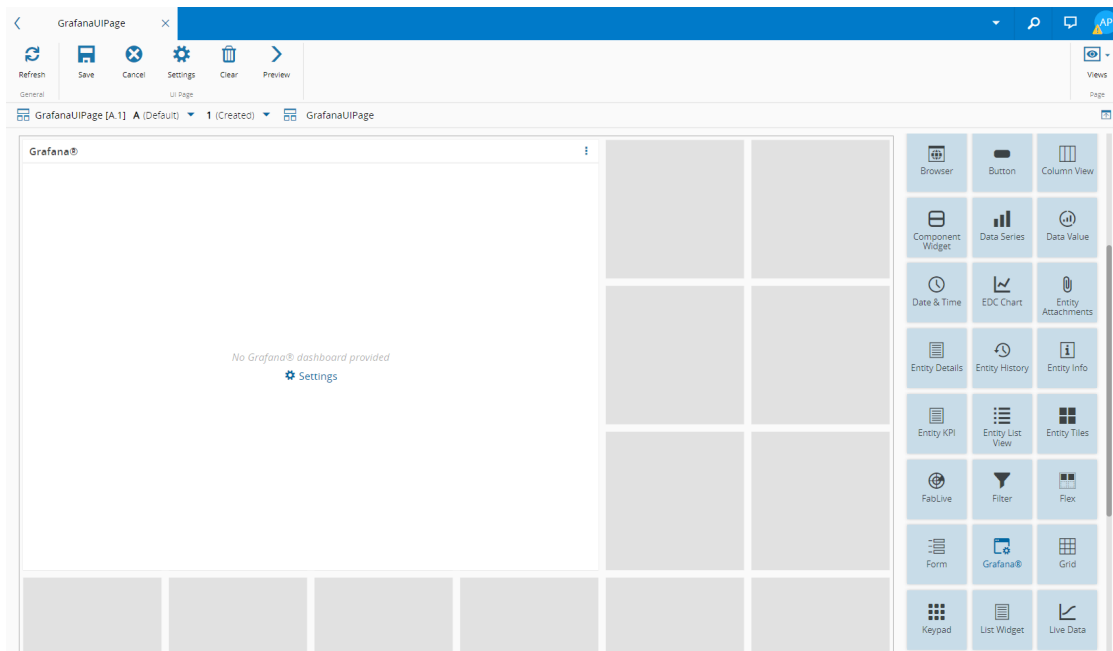
For more information, see [Create UI Page](#).

## Configuring the Grafana Widget

1. In the created UI Page, select **Edit** in the top ribbon:



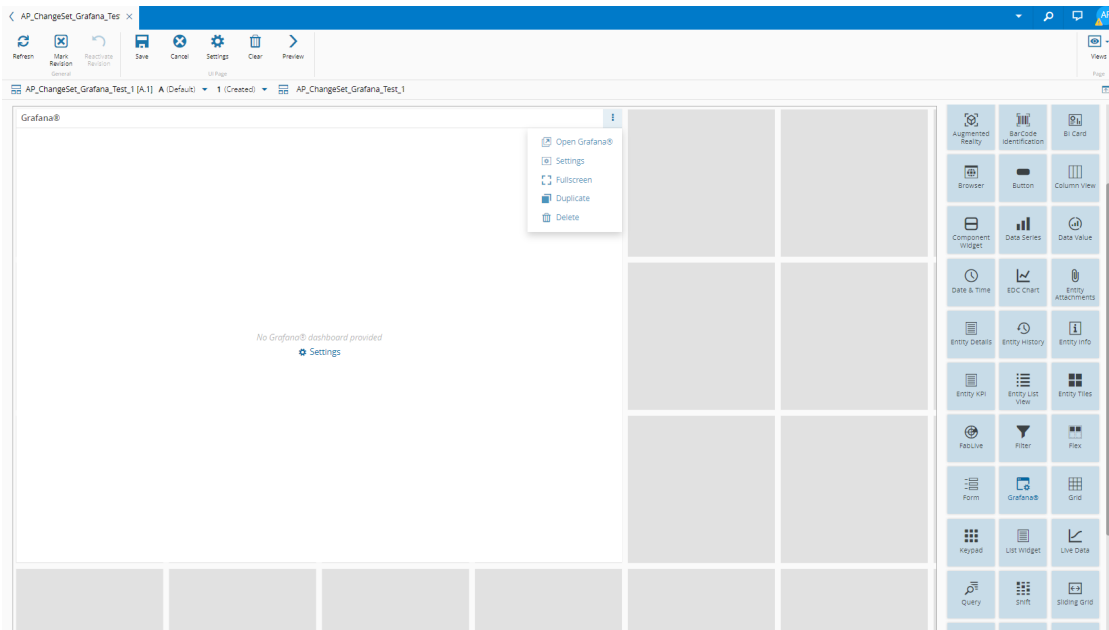
2. Drag and drop the **Grafana** widget into the desired place and expand it as needed:



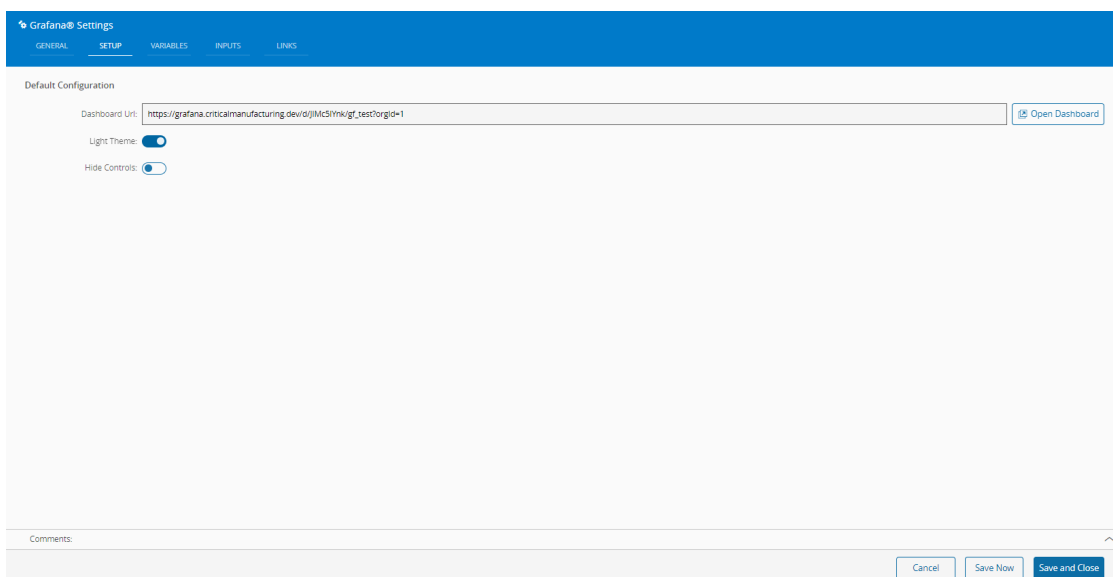
3. If you have not yet created your [Grafana](#) dashboard, select the **More** dropdown, and **Open Grafana** to access the Grafana platform, where you can create your dashboard that you will use later in this UI Page.

**Note**

You can access Grafana [Documentation](#) and other useful links to help you start creating your Grafana dashboard.

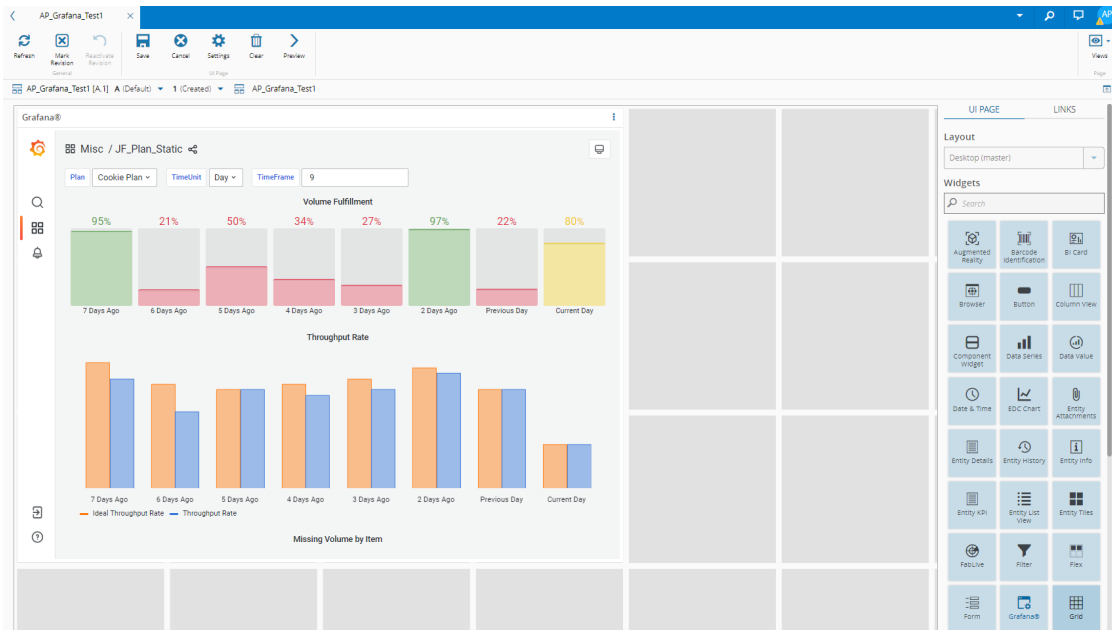


4. When your Grafana dashboard is created, copy its address.
5. In your UI Page and select **Settings** in the **More** dropdown of the **Grafana** widget:
6. Select the **Setup** tab and paste the complete address of your created Grafana dashboard in **Dashboard Url:**

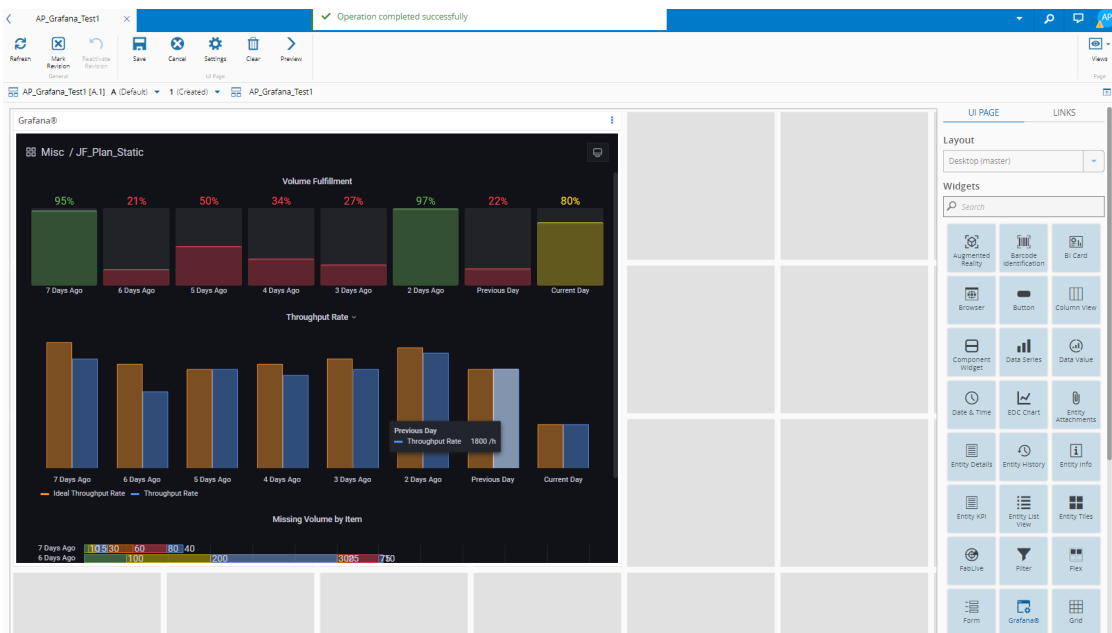


In the **Setup** tab you can also select between a light and a dark theme and whether or not to hide the controls:

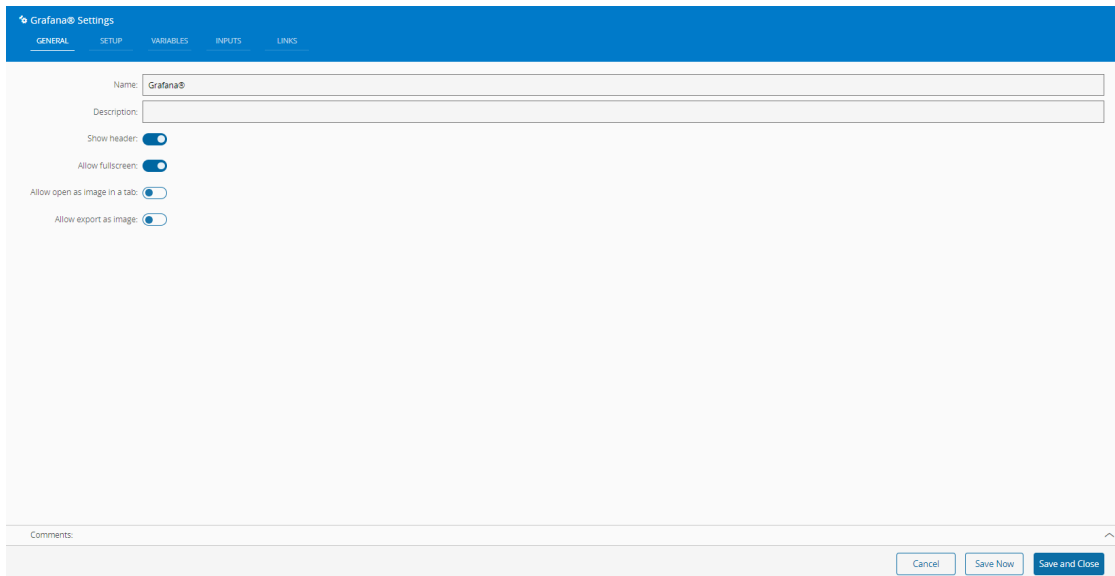
- a) Grafana with a light theme and the controls bar on the left:



b) Grafana with a dark theme and no controls bar:



7. In the **General** tab, provide a name for the widget (Grafana by default), and configure the other available options as needed:



Grafana® Settings

GENERAL SETUP VARIABLES INPUTS LINKS

Name:

Description:

Show header:

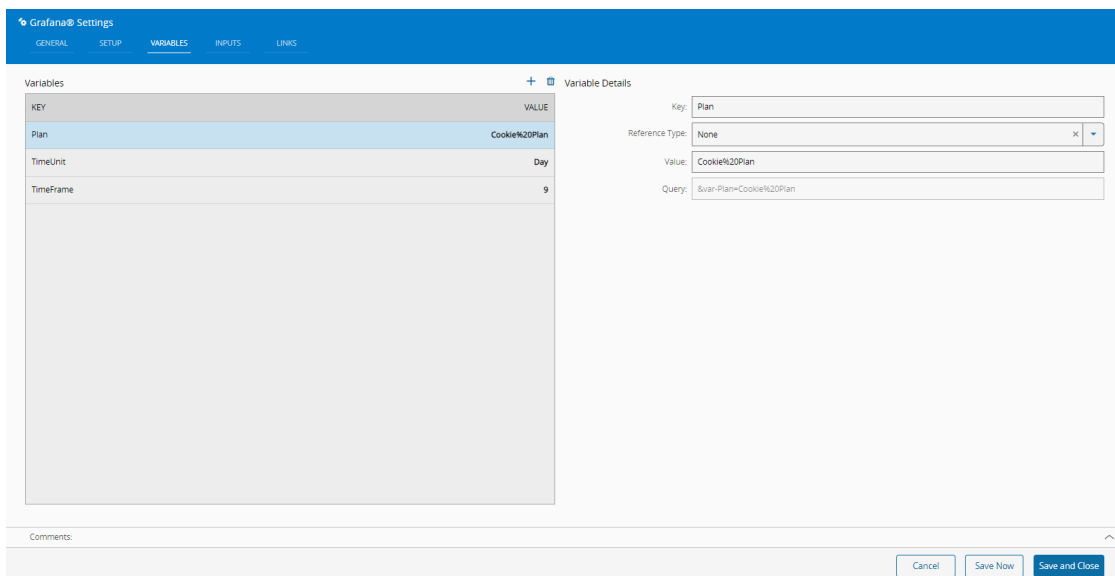
Allow fullscreen:

Allow open as image in a tab:

Allow export as image:

Comments:

8. In the **Variables** tab you can + or override the variables created in Grafana along with their details:



Grafana® Settings

GENERAL SETUP VARIABLES INPUTS LINKS

Variables + Variable Details

KEY	VALUE
Plan	Cookie%20Plan
TimeUnit	Day
TimeFrame	9

Key:

Reference Type:

Value:

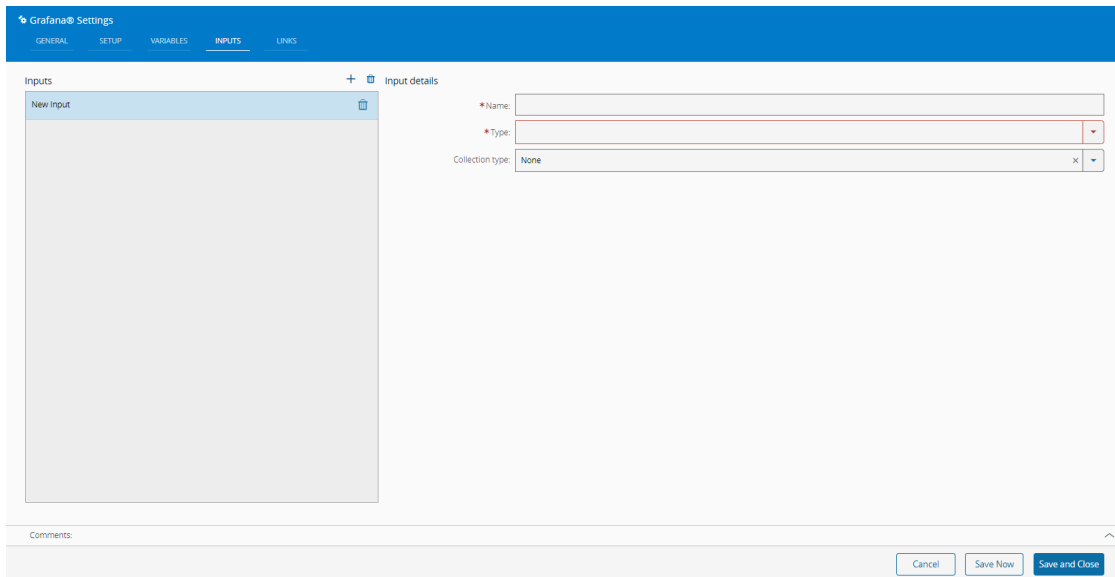
Query:

Comments:

**Note**

The **Variables** you define in the settings are the default ones but you can introduce other settings, like Area or Resource, from the UI Page into Grafana. For this tutorial, we are using a TimeUnit variable.

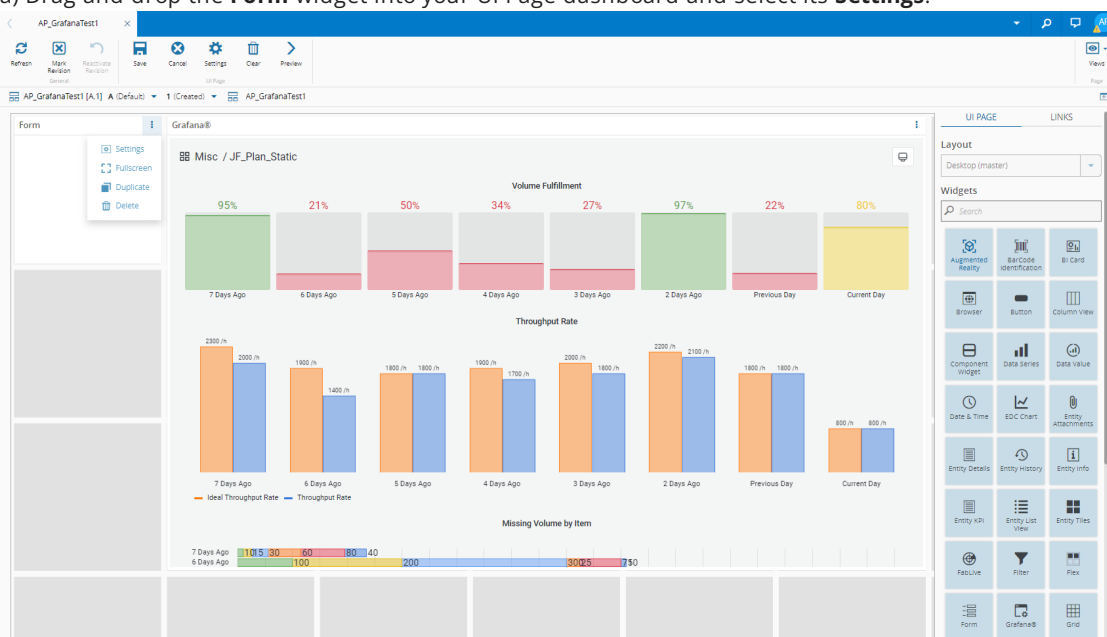
9. In the **Inputs** tab you can + as needed, and the **Name** and **Type**, that relate to the input, are mandatory:



10. In the **Links** tab you can add links and make your UI Page more dynamic.

Example with **Form** widget:

a) Drag and drop the **Form** widget into your UI Page dashboard and select its **Settings**:



b) Go to the **Fields** tab, select **+** to change the TimeUnit variable, which is of the Type String, and **Save and Close**:

**Form Settings**

GENERAL FIELDS LINKS

Fields

Field details

# Name: TimeUnit

Label Font size: Normal

Value Font size: Normal

Alignment: Default

Foreground color: [Dropdown]

Type: String

Collection type: None

Units: [Text Box]

Disable:

Required:

Hide label:

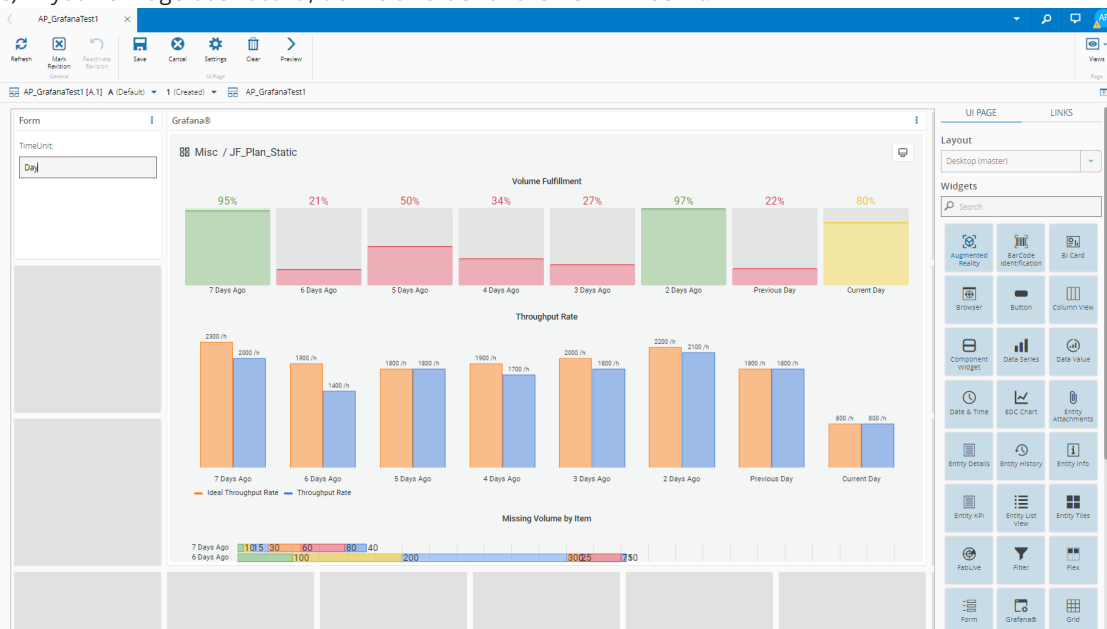
Read-only:

Hide:

Comments:

Cancel Save Now Save and Close

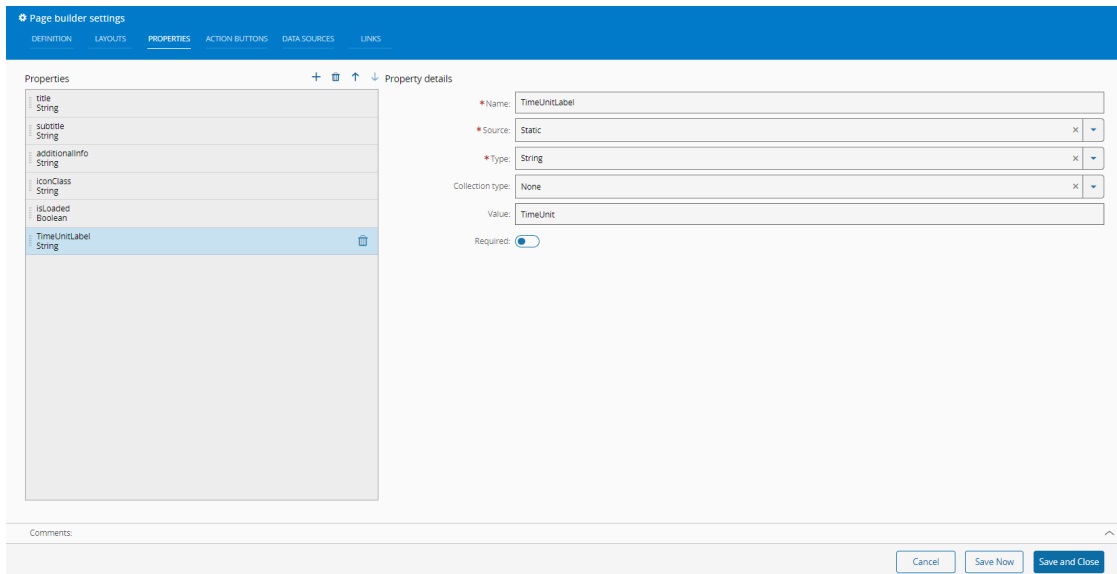
c) In your UI Page dashboard, define a value for the new TimeUnit:



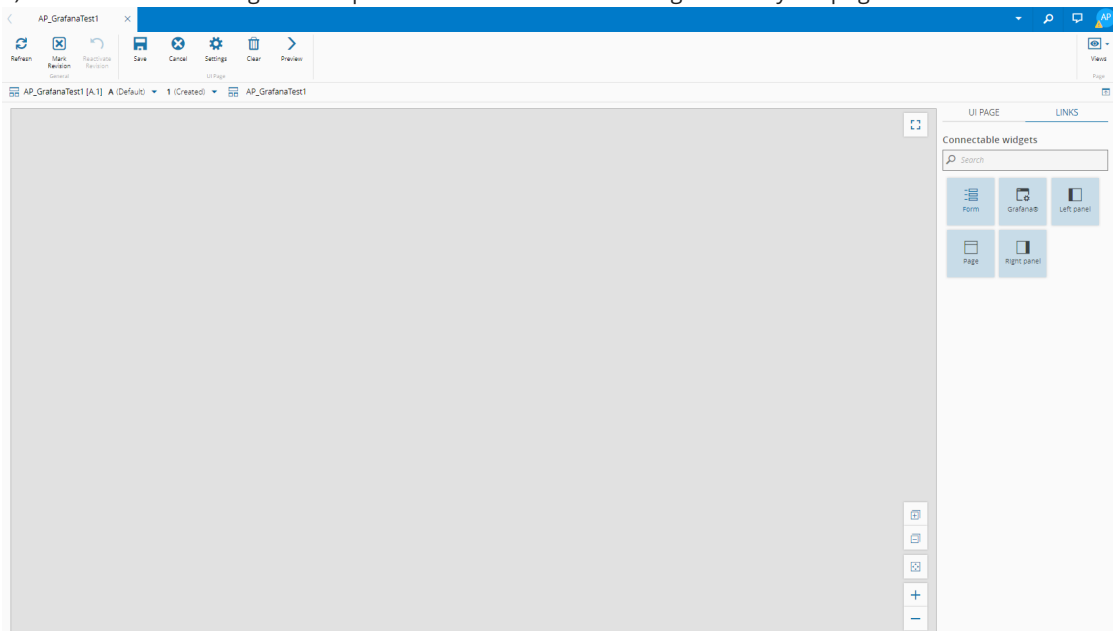
The screenshot shows a UI Page dashboard with a Grafana dashboard embedded. The Grafana dashboard displays three charts: Volume Fulfillment, Throughput Rate, and Missing Volume by Item. The Volume Fulfillment chart shows percentages for various time periods. The Throughput Rate chart shows bar graphs for Ideal Throughput Rate and Throughput Rate. The Missing Volume by Item chart shows a bar graph for missing volume.

The UI Page dashboard includes a ribbon with options like Refresh, Mark, Revision, Reactivate, Response, Save, Cancel, Settings, Clear, and Preview. The Settings option is highlighted. The dashboard also features a widget panel on the right with various widget options like Augmented Reality, Barcode Identification, BI Card, Browser, Button, Column View, Component Widget, Data Series, Data Value, Date & Time, EDC Chart, Entry Assignments, Entry Details, Entry History, Entry Info, Entry xAPI, Entry List View, Entry View, FabLive, Filter, Flex, Form, Grafana®, and Grid.

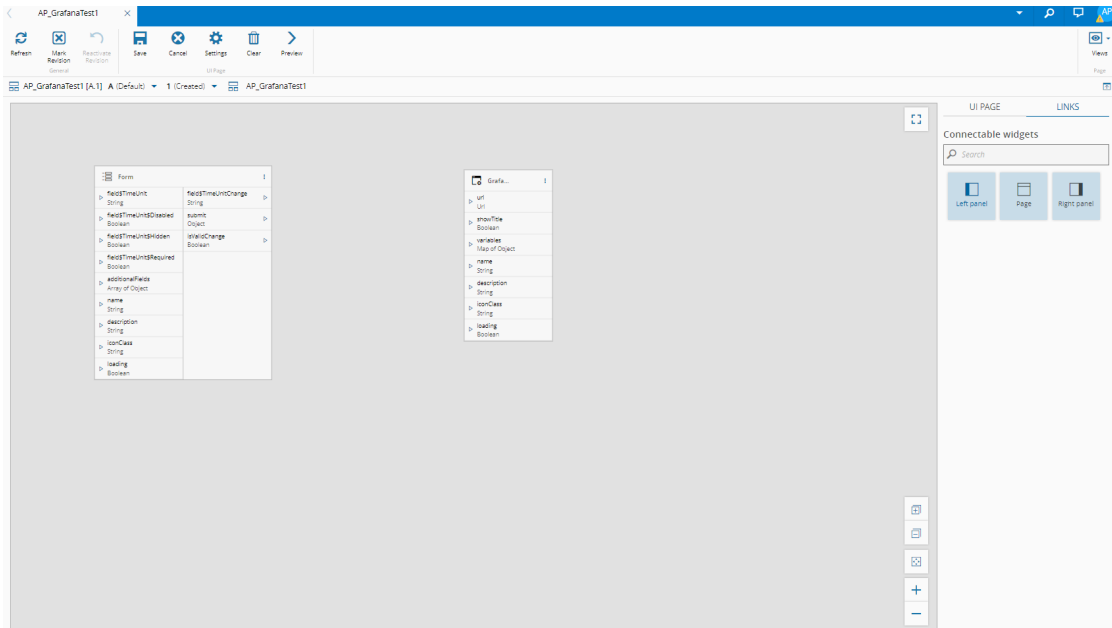
d) In the top ribbon of your UI Page, select **Settings**, then in the **Properties** tab + a new property that will be your TimeUnit label. Give it the appropriate **Name**, **Source**, **Type**, **Value** (key of the variable in Grafana), and **Save and Close**:



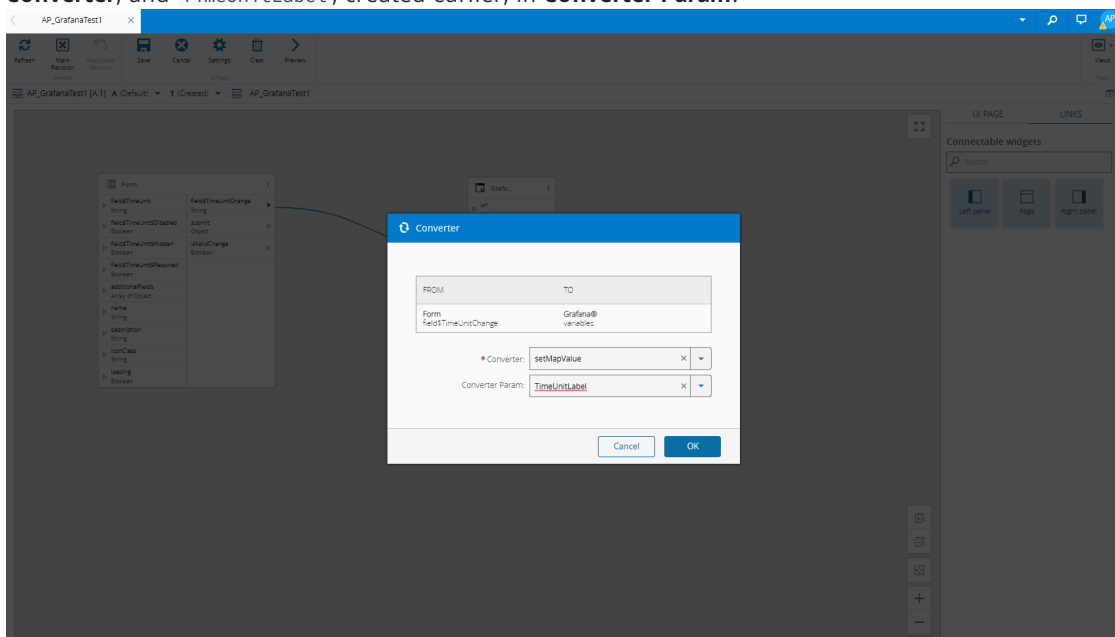
e) Select **Links** and drag and drop the **Forms** and **Grafana** widgets onto your page:



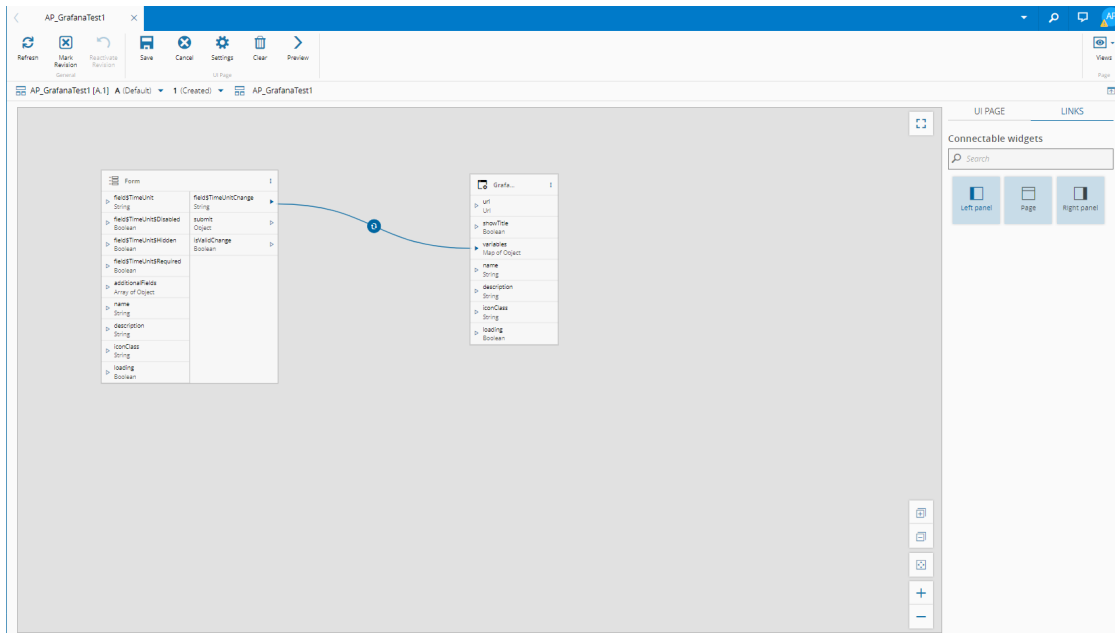
It will look like this:



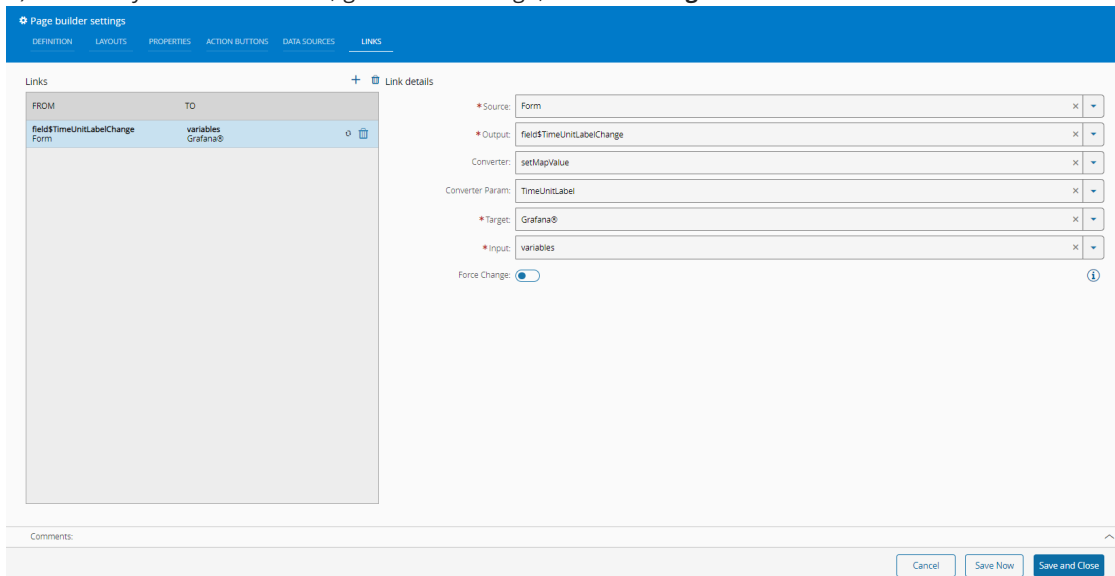
f) Send the result of the TimeUnitChange String to variables, which is a map, select `setMapValue` in **Converter**, and `TimeUnitLabel`, created earlier, in **Converter Param**:



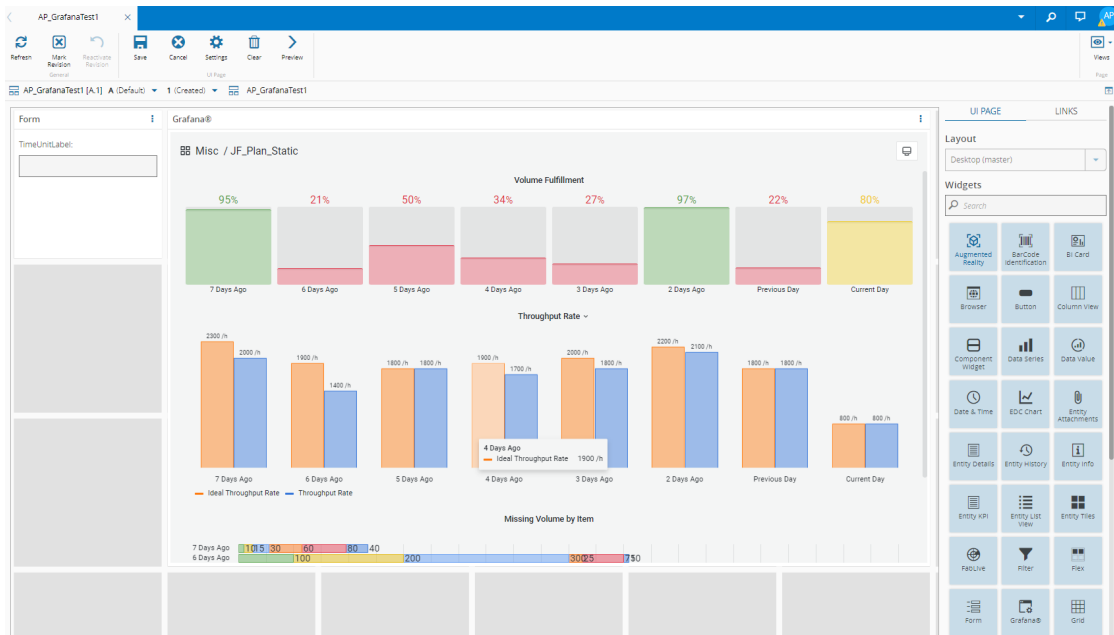
g) Select **OK**:



h) To check your link is correct, go back to UI Page, select **Settings** and access the **Links** tab:



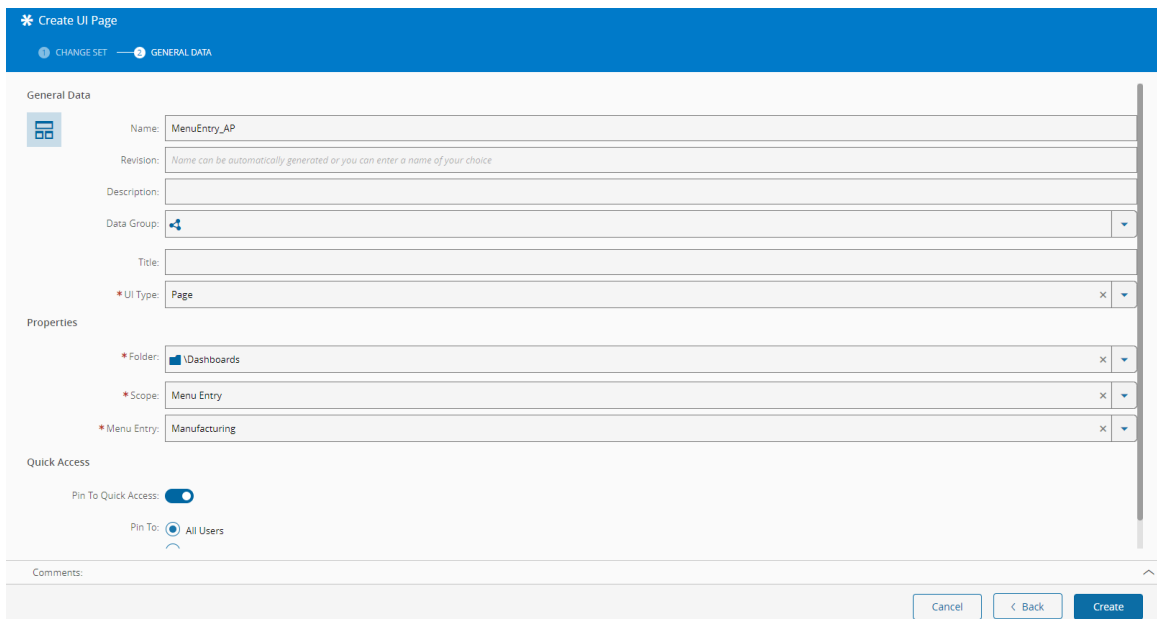
11. Save and close the settings, and the widget will be updated:



For more information, see the System Widgets [Grafana](#) page in the UI Pages menu.

## Making it Available

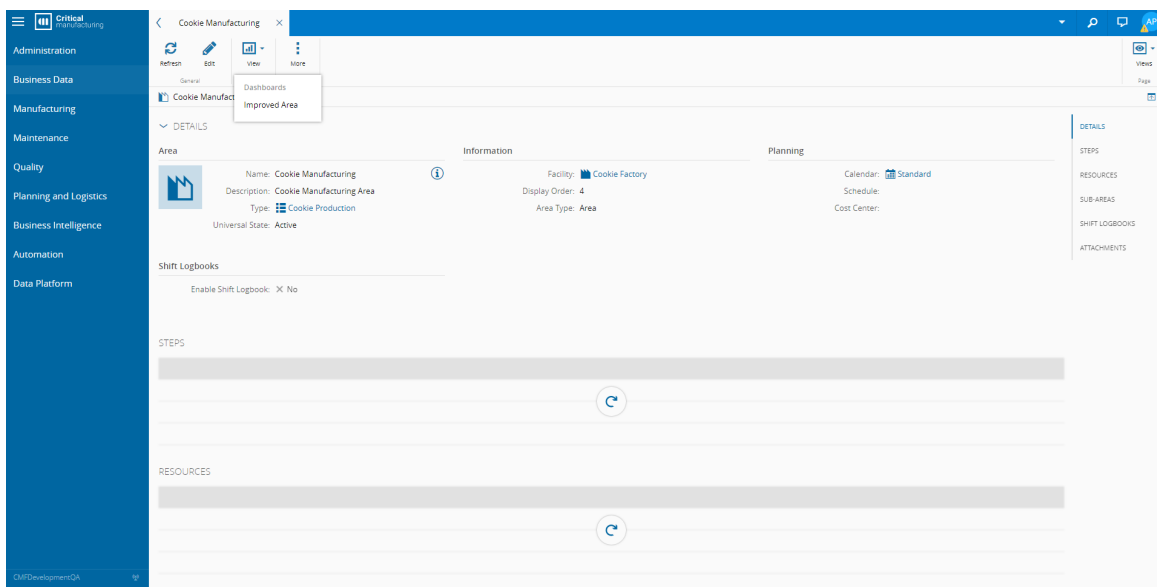
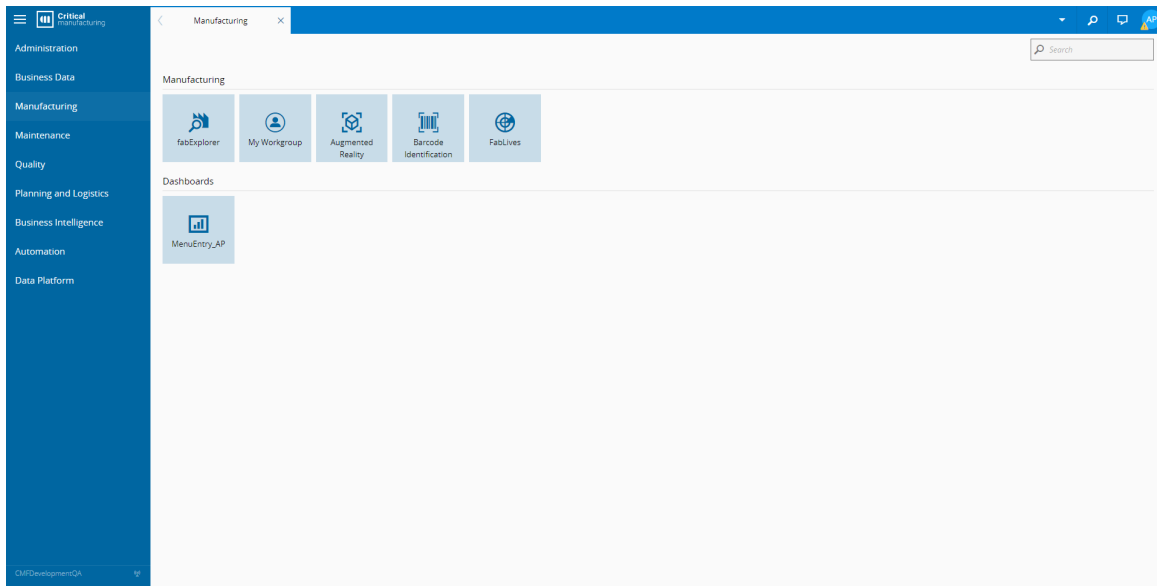
You can create a shortcut for your UI Page by editing the **Scope** to **Entity Type** or **Menu Entry**, and setting the **Pin To Quick Access** option to `true`:



The 'Create UI Page' form is configured as follows:

- Name:** MenuEntry\_AP
- Revision:** (Automatically generated)
- Description:** (Empty)
- Data Group:** (Selected)
- Title:** (Empty)
- UI Type:** Page
- Properties:**
  - Folder:** Dashboards
  - Scope:** Menu Entry
  - Menu Entry:** Manufacturing
- Quick Access:**
  - Pin To Quick Access:**
  - Pin To:** All Users

This means that quick access will be visible in the **Dashboards** section of the menu entry for the **Menu Entry** scope, or under **View** for the **Entity Type** scope:



 **Note**

You can only use the **UI Page** if it is **Effective**. Therefore, for the quick access to be visible in the **Dashboards** you must approve the **Change Set** and the **Universal State** must be **Effective**.

MenuEntry\_AP

New Refresh Edit Lock More

MenuEntry\_AP [A.1] A (Default) 1 (Effective)

DETAILS

UI Page Information Quick Access

Name: MenuEntry\_AP  
Description: Process1  
Universal State: Effective  
Label:  
UI Type: Page

Folder: Dashboards  
Scope: Menu Entry  
Menu Entry: Manufacturing

Pin To Quick Access: Yes  
Pin To: All Users

PRESETS

ATTACHMENTS



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