



Critical
manufacturing
an ASM PT company

Grafana

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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.

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:

Grafana®



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

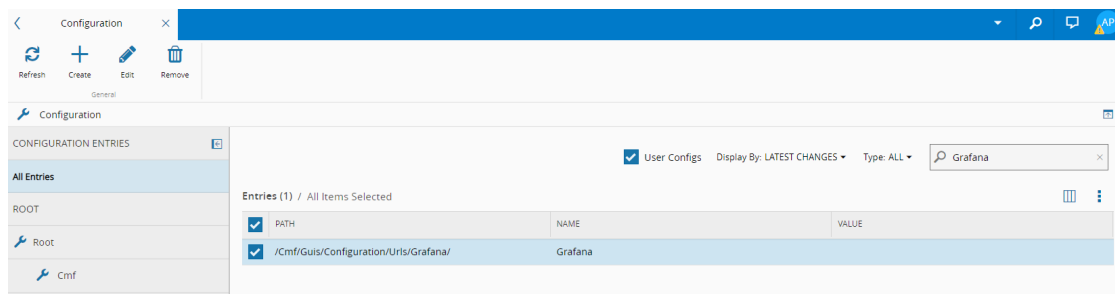
Setting Up Grafana

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:

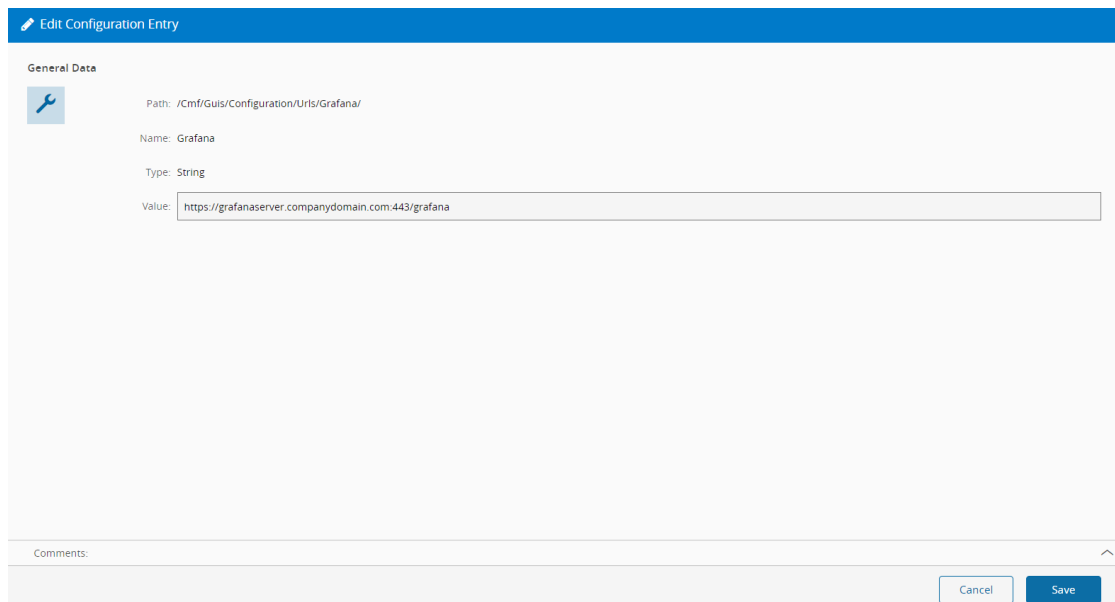
Step Number	Step	Description
1	Configure Grafana	Configure <code>/Cmf/Guis/Configuration/Urls/Grafana/</code> with the appropriate Value .
2	Create a UI Page	Create a UI Page where you will use the Grafana widget.

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:



4. Save.

Step 2: Create a UI Page

1. Create your UI Page:

Create UI Page

CHANGE SET — GENERAL DATA

General Data

Name: GrafanaUIPage

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

Description: New UI Page for Grafana

* UI Type: Page

Properties

* Folder: Dashboards

* Scope: General

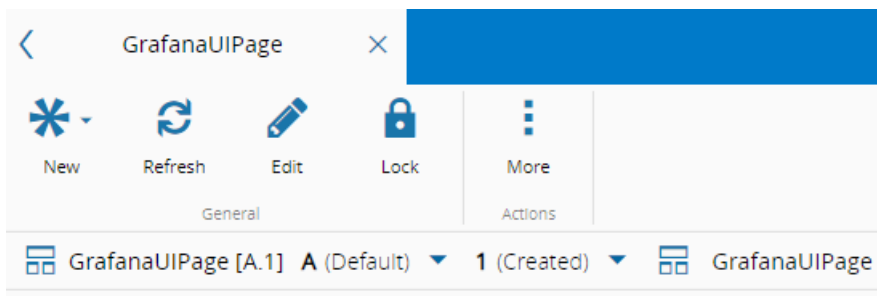
Comments:

Cancel < Back Create

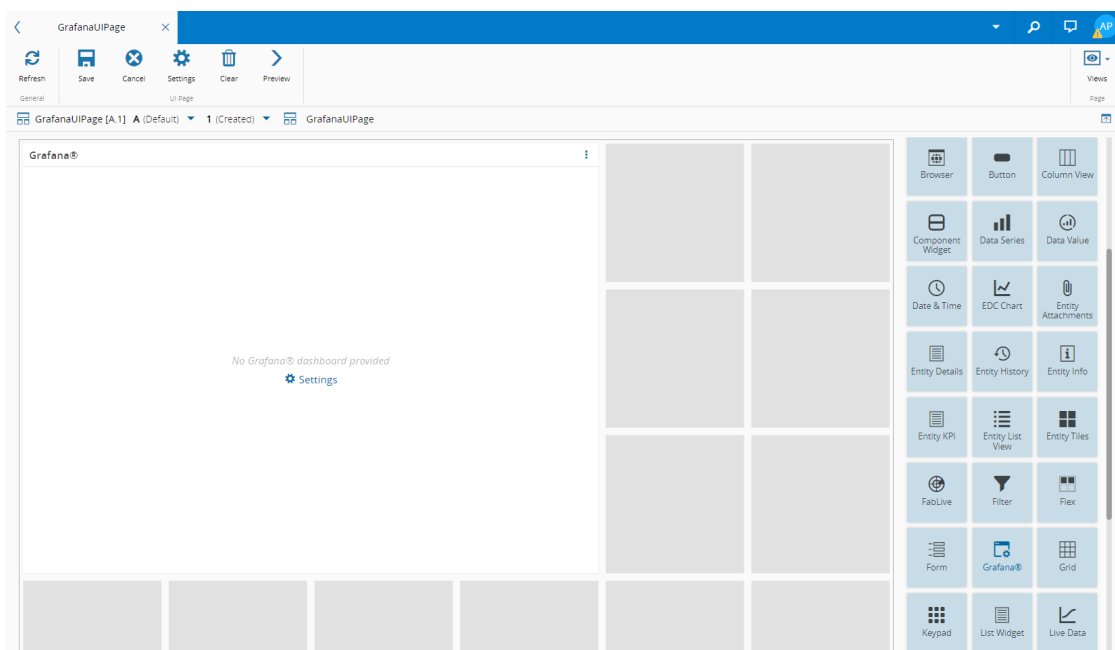
For more information, see [Create UI Page](#).

Configuring the Grafana Widget

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



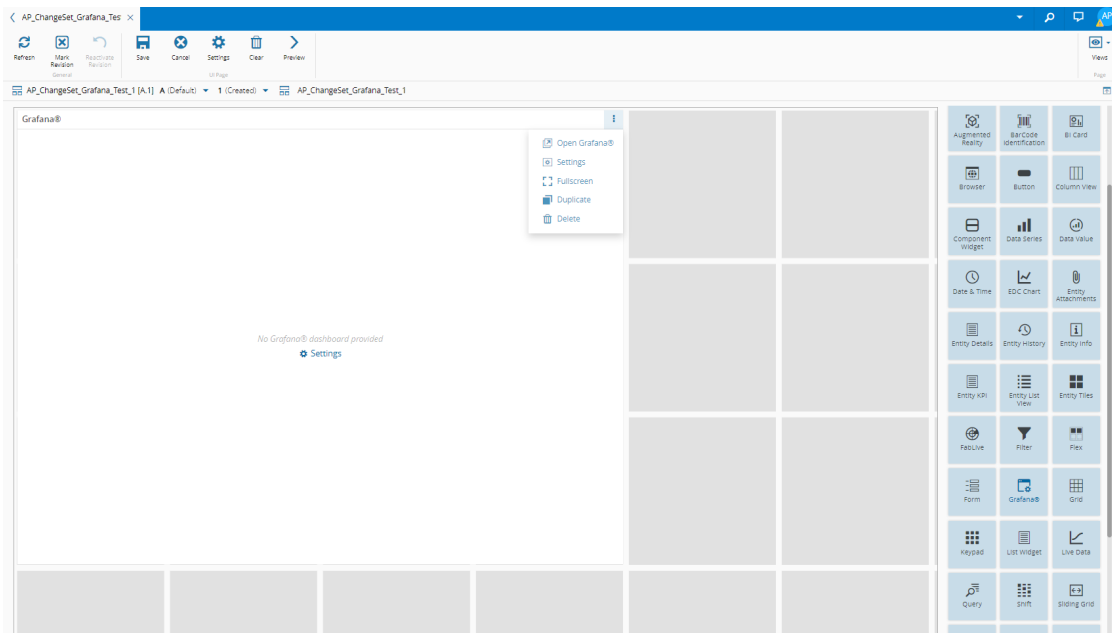
2. Drag and drop the **Grafana** widget into the desired place and expand it as needed:



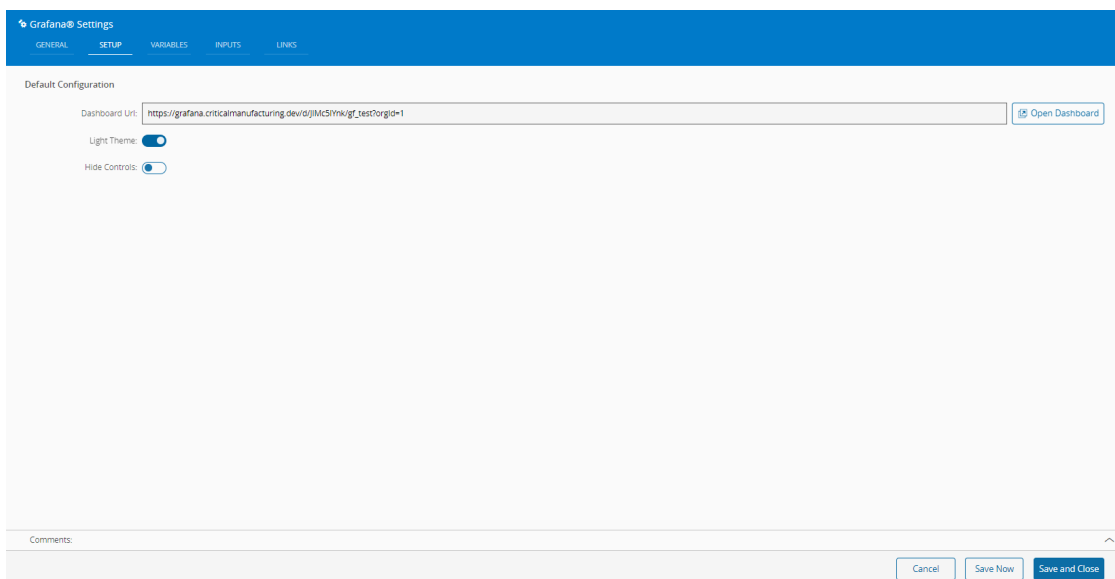
- If you have not yet created your [Grafana](#) dashboard, select the **More** dropdown, and **Open Grafana** to access the Grafana platform, where you can create your dashboard that you will use later in this UI Page.

Note

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

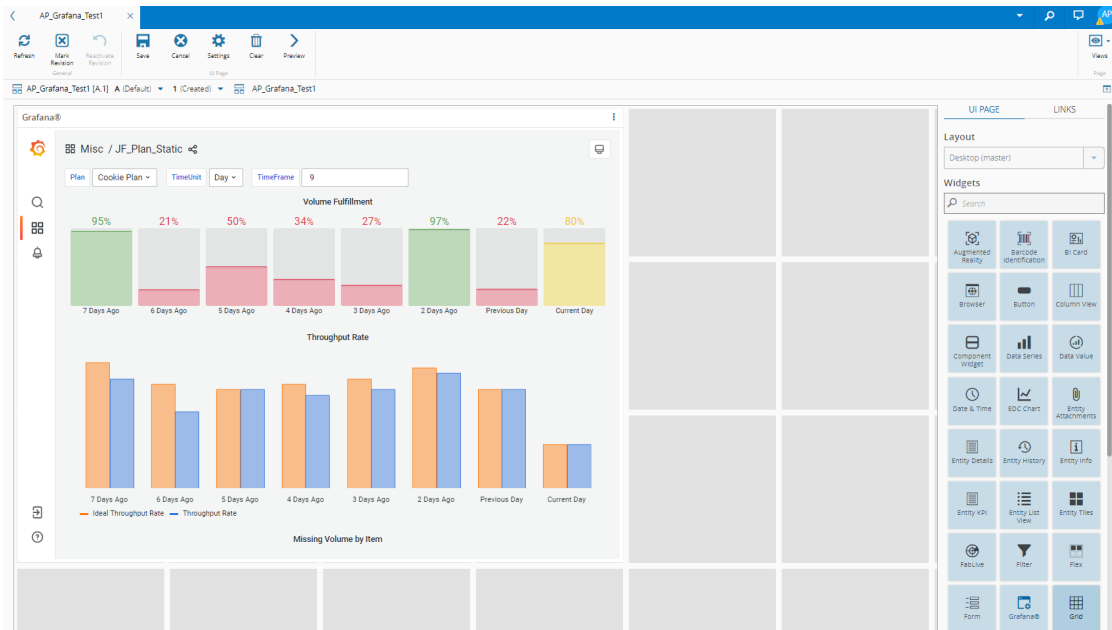


- When your Grafana dashboard is created, copy its address.
- In your UI Page and select **Settings** in the **More** dropdown of the **Grafana** widget:
- Select the **Setup** tab and paste the complete address of your created Grafana dashboard in **Dashboard Url:**

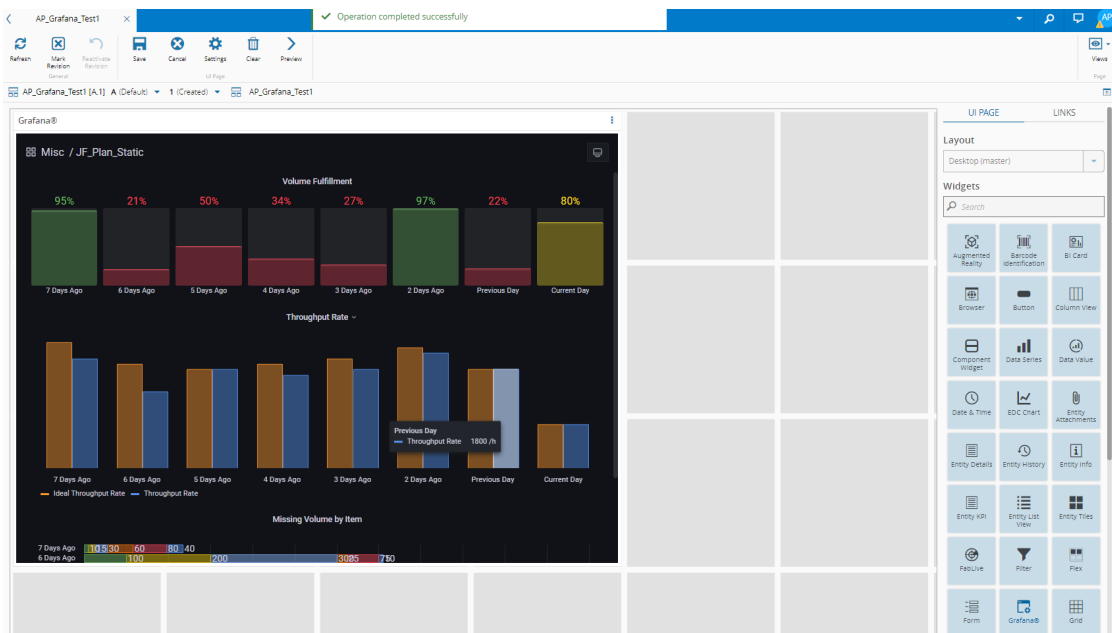


In the **Setup** tab you can also select between a light and a dark theme and whether or not to hide the controls:

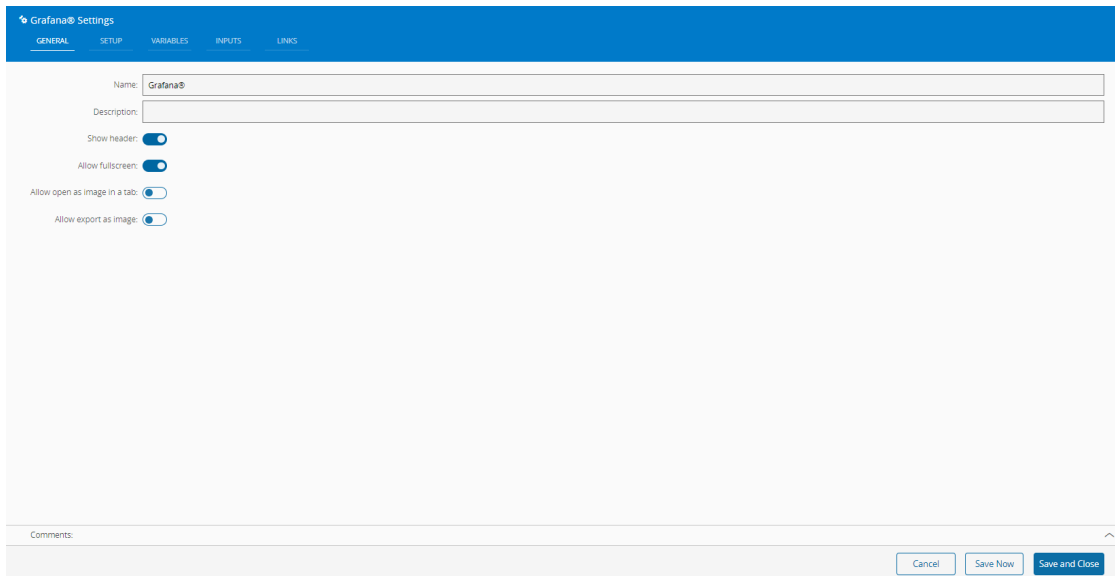
- Grafana with a light theme and the controls bar on the left:



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:

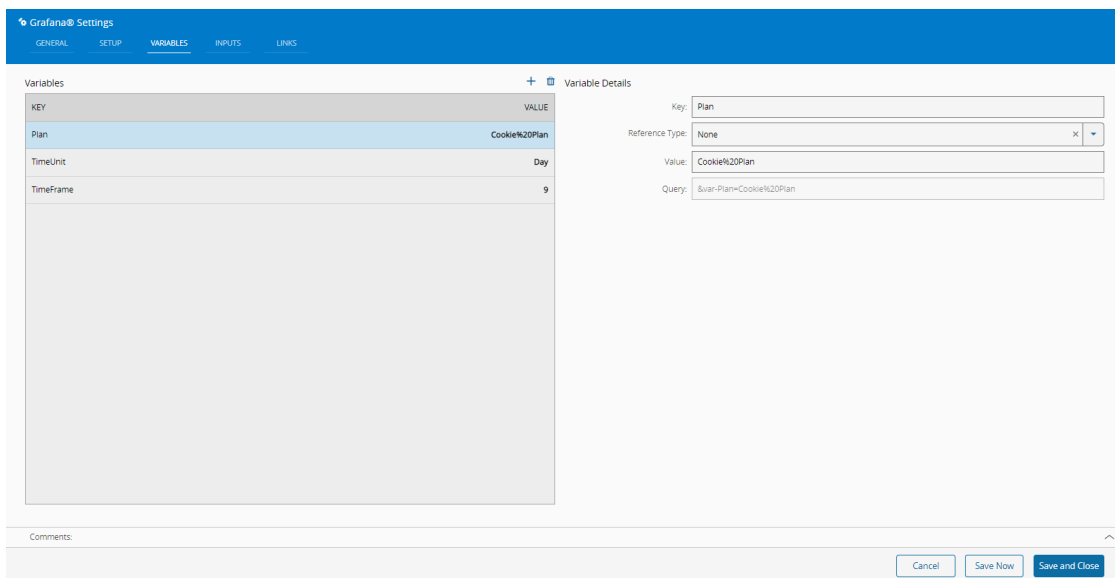
Allow fullscreen:

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: x

Value:

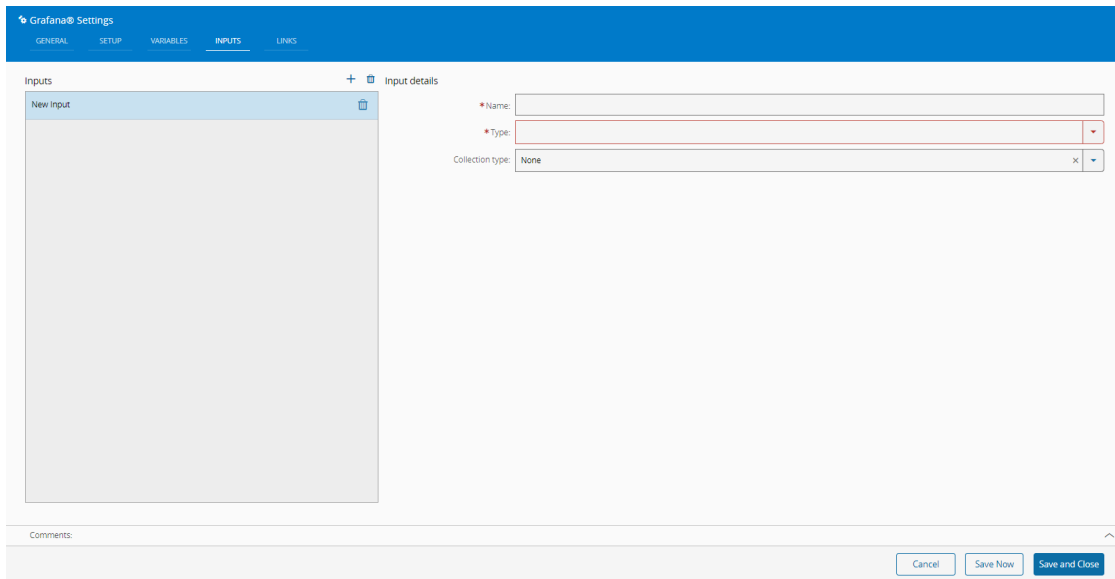
Query:

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:

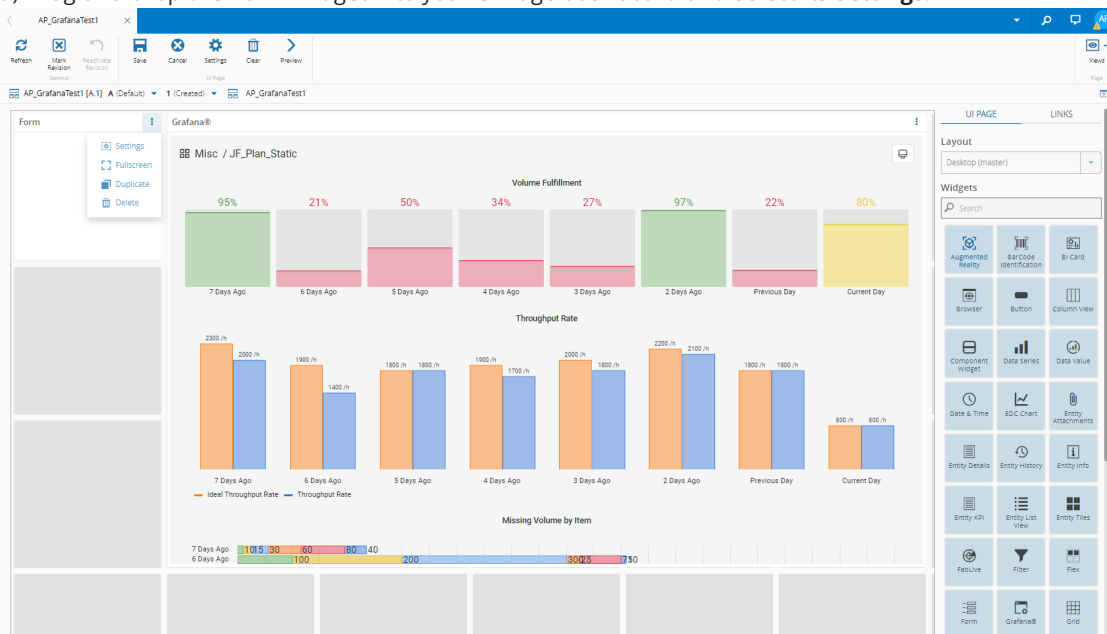


The screenshot shows the 'Grafana Settings' interface with the 'INPUTS' tab selected. On the left, there is a 'New Input' button and a large empty area for input details. On the right, there are three input fields: '* Name:' (text), '* Type:' (dropdown), and 'Collection type:' (dropdown with 'None' selected). At the bottom, there is a 'Comments:' field and three buttons: 'Cancel', 'Save Now', and 'Save and Close'.

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 Field]

Disable:

Required:

Hide label:

Read-only:

Hide:

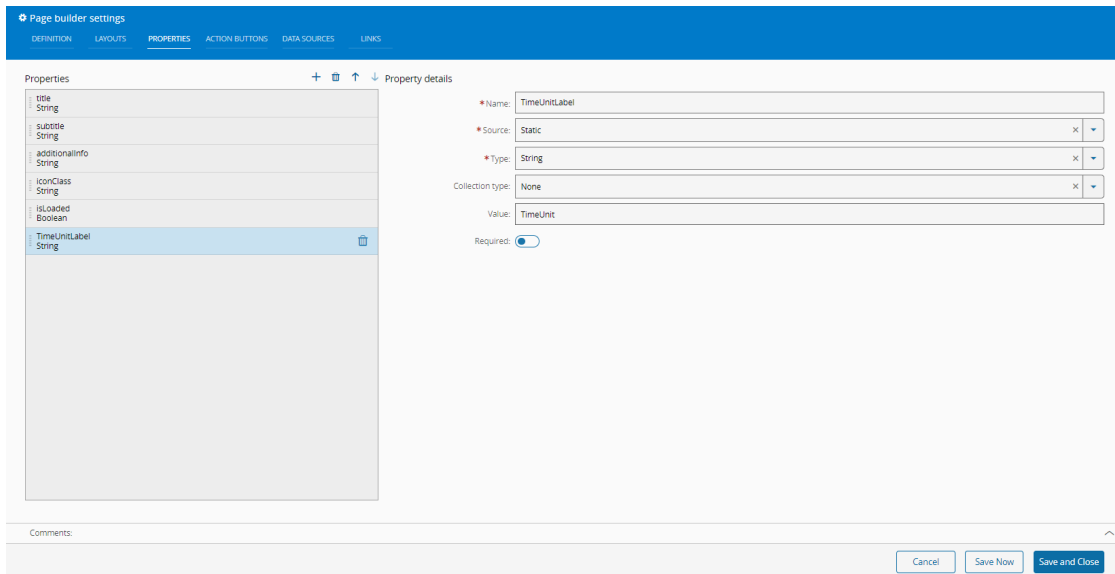
Comments:

Cancel Save Now Save and Close

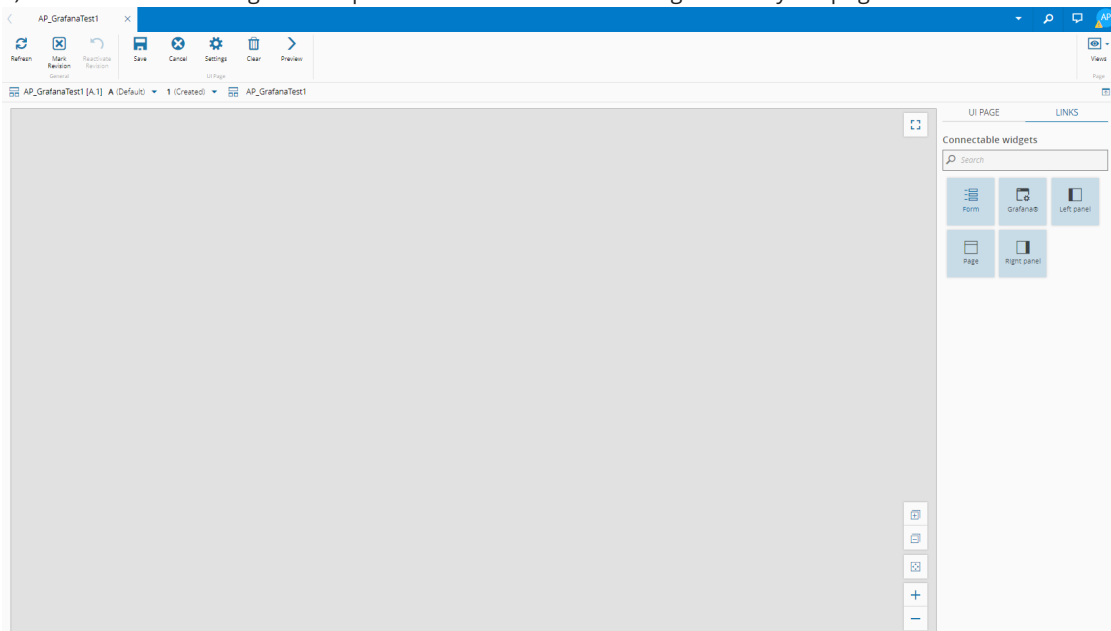
c) In your UI Page dashboard, define a value for the new TimeUnit:

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 widget panel on the right contains various widgets like Augmented Reality, Barcode Identification, BI Card, Browser, Button, Column View, Component Widget, Data Series, Data Value, Date & Time, EDC Chart, Entity Assignments, Entity Details, Entity History, Entity Info, Entity xAPI, Entity List View, Entity View, FabLive, Filter, Flex, Form, Grafana®, and Grid.

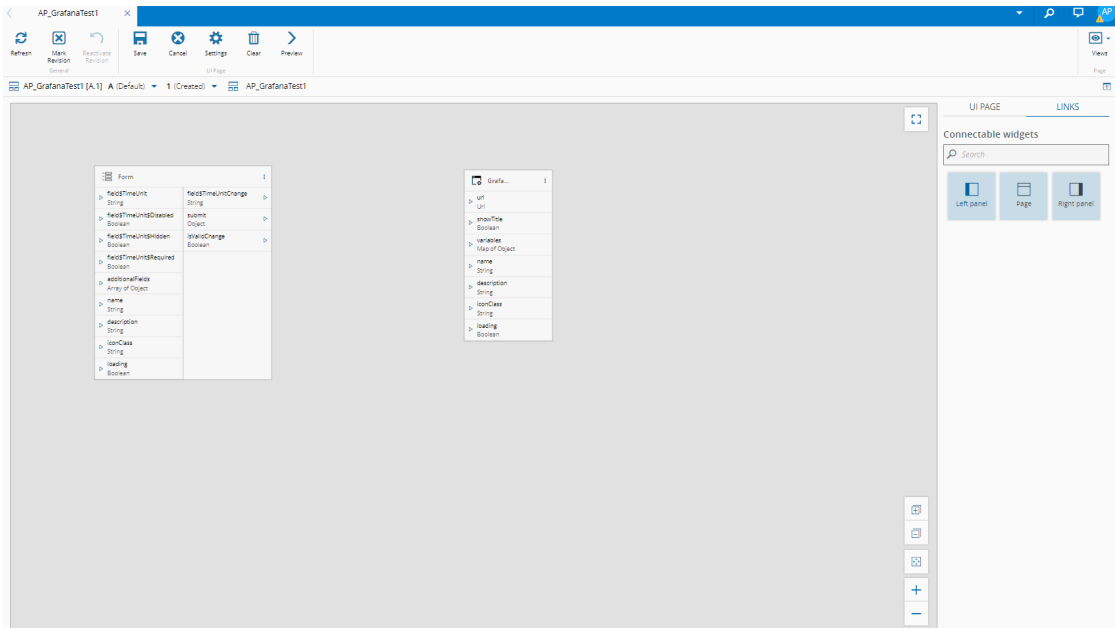
d) In the top ribbon of your UI Page, select **Settings**, then in the **Properties** tab + a new property that will be your TimeUnit label. Give it the appropriate **Name**, **Source**, **Type**, **Value** (key of the variable in Grafana), and **Save and Close**:



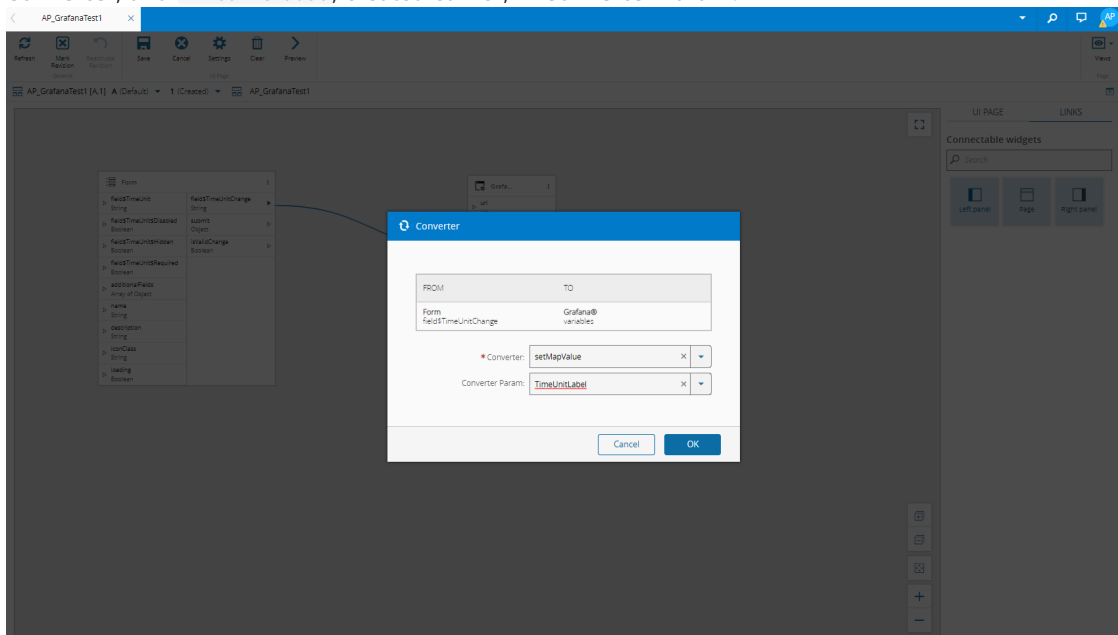
e) Select **Links** and drag and drop the **Forms** and **Grafana** widgets onto your page:



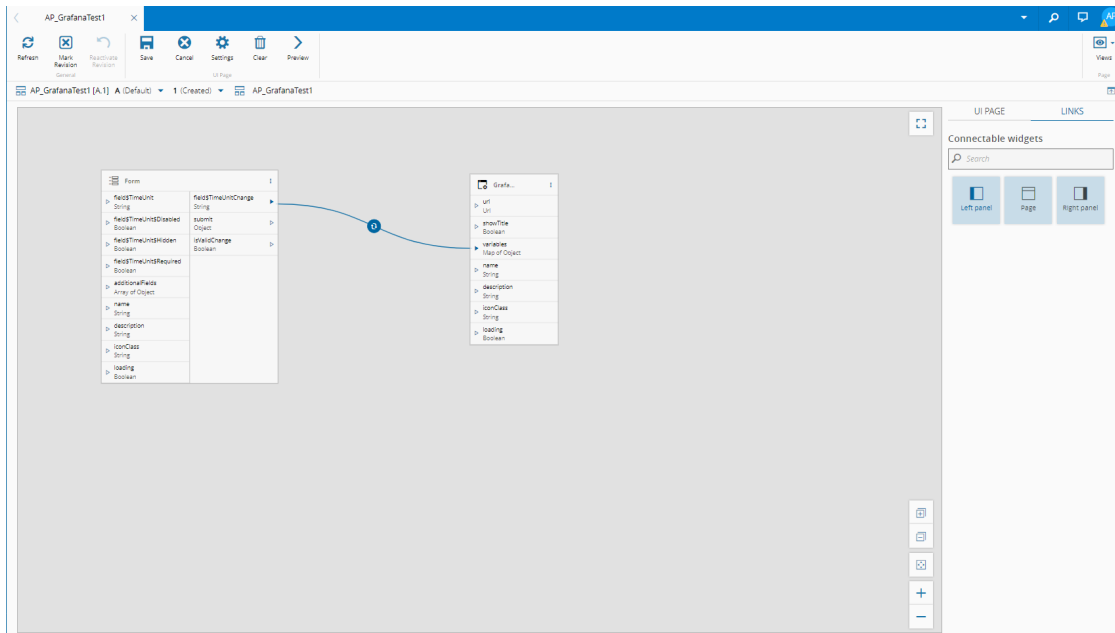
It will look like this:



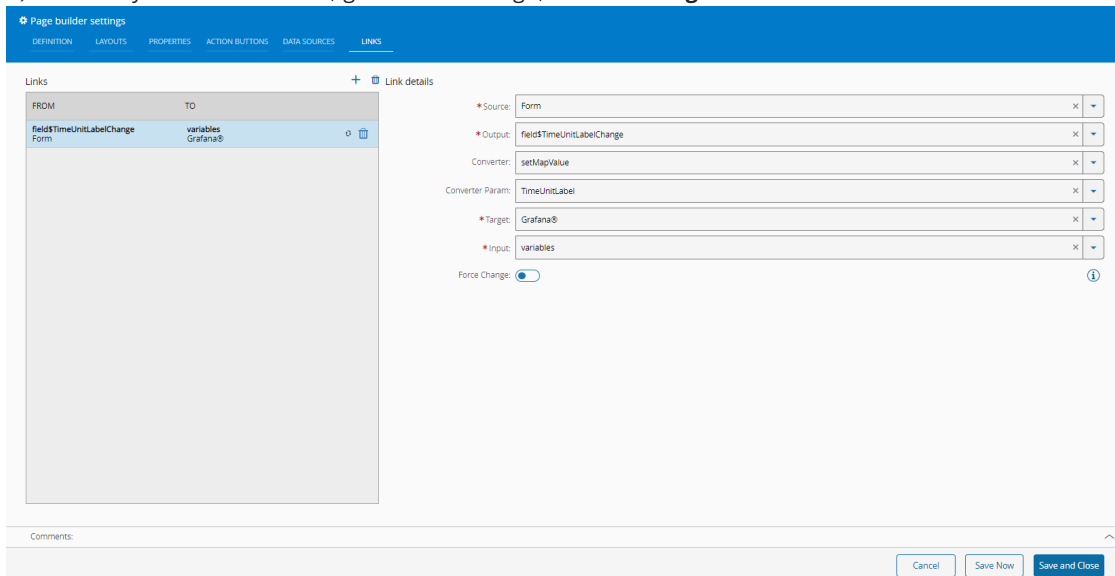
f) Send the result of the TimeUnitChange String to variables, which is a map, select `setMapValue` in **Converter**, and `TimeUnitLabel`, created earlier, in **Converter Param**:



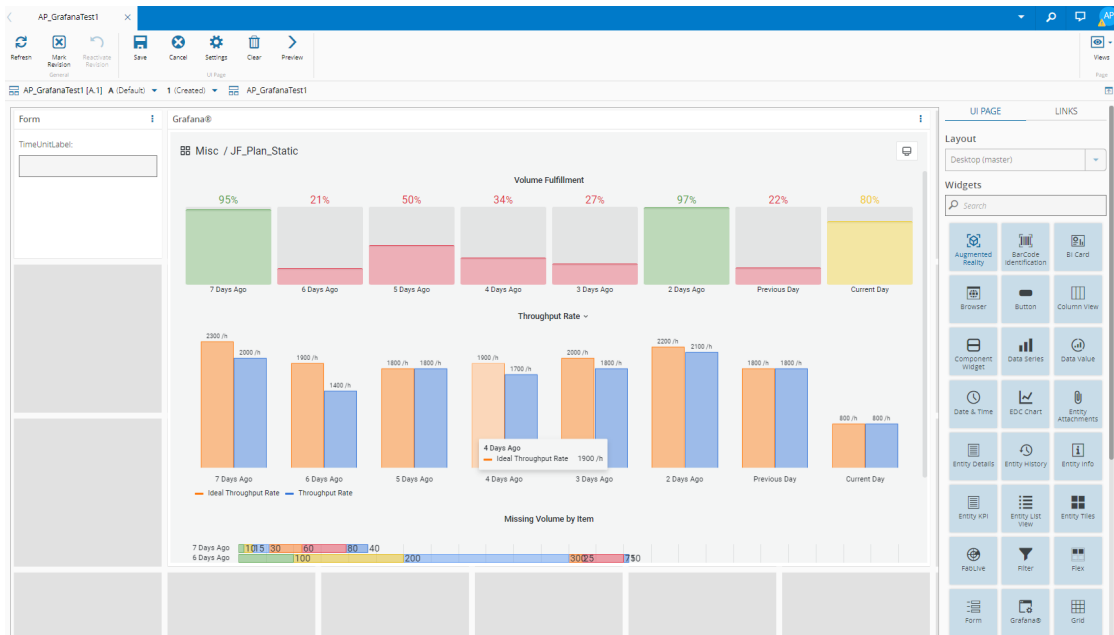
g) Select **OK**:



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



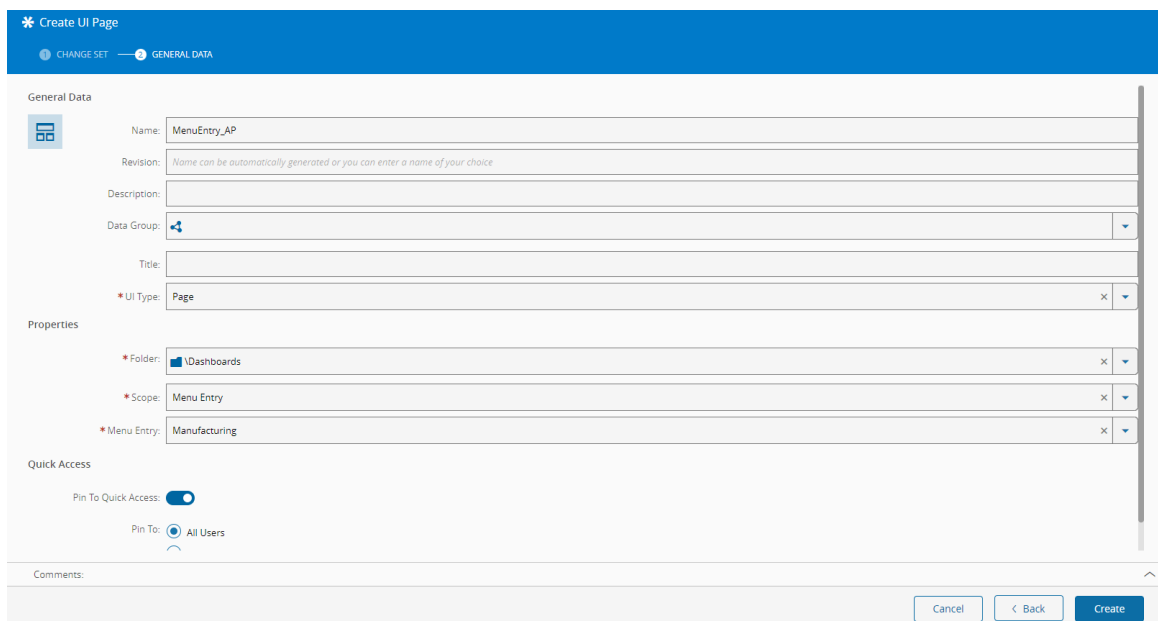
11. Save and close the settings, and the widget will be updated:



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`:

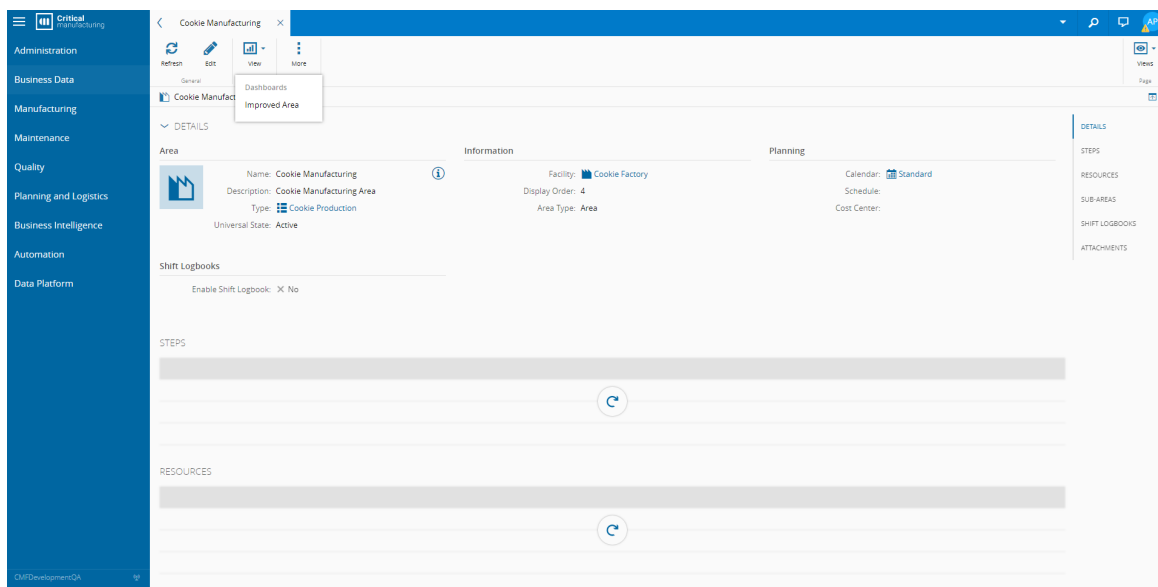
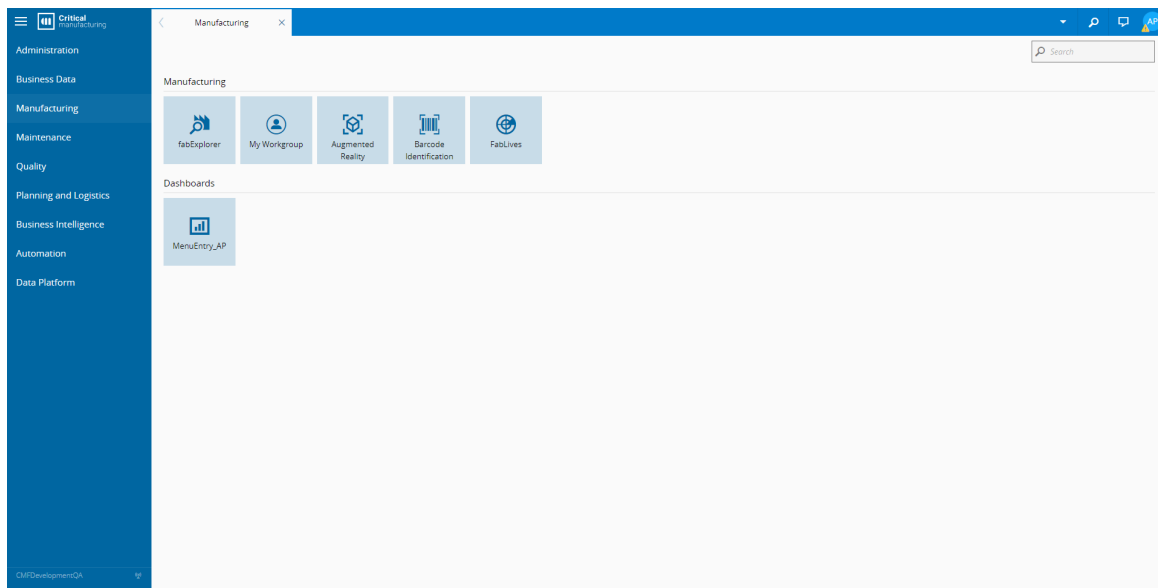


The 'Create UI Page' form is shown with the following configuration:

- Name:** MenuEntry_AP
- Revision:** (Name can be automatically generated or you can enter a name of your choice)
- Description:** (Empty)
- Data Group:** (Dropdown menu)
- Title:** (Empty)
- * UI Type:** Page
- Properties:**
 - * Folder:** Dashboards
 - * Scope:** Menu Entry
 - * Menu Entry:** Manufacturing
- Quick Access:**
 - Pin To Quick Access:**
 - Pin To:** All Users

Buttons at the bottom: Cancel, < Back, Create

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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