

Plan

11.1

January 2026

DOCUMENT ACCESS

Public

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Plan

Estimated time to read: 7 minutes

A **Plan** is the central entity for the attainment of an production need. A **Plan** represents a matrix of quantities indexed by:

- A manufacturing unit (**Product** or **Product Group**) called Plan Item.
- A set of time periods called Time Frames.

This matrix will be associated to a Critical Manufacturing MES Plan Item level (**Area, Facility, Site** or **Enterprise**) and the **Plan** is used to hold the definitions and actual quantities that are planned to be produced on a specific manufacturing level and within a given time frame.

This document will guide you through the required configurations and set up for the **Plan** functionality.

Note

The **Plan** entity is not directly related to any other plan; namely, the **Inspection Plan**, **Maintenance Plan**, and **Sampling Plan** entities.

Overview

The **Plan** entity is intended to fulfil a specific production demand and can be used at different practical levels.

Note

Plan is used for a different type of planning from the **Schedule** entity. **Plan** is used to assign quantities or volumes to specific time frames and is used at different planning levels. **Schedule** is used to assign start and end dates to jobs at the Detailed Scheduling level.

In Critical Manufacturing MES, **Plan** is a structure that represents any production plan at any level, which is relevant to MES, in the form of production volumes for a certain manufacturing unit or specified item(s) and for a specified horizon.

Its purpose is to validate or track and to compare the plan volumes with the actual volumes recorded in MES.

Main objectives of **Plan**:

- Track if the volumes are being kept.
- Allow importing Planned Volumes from an external system - commercial planning solution or through Master Data Package loading.

Note

There is currently no underlying engine that allows finite capacity planning at all levels supported by the **Plan** entity. Therefore, **Plan** information must be filled in by the user via the [GUI](#) or [Master Data Package](#) from an Excel sheet or by integrating with an external commercial planning solution.

Setting up a Plan

To have a functioning **Plan**, you have to set up other Critical Manufacturing [MES](#) entities as shown in the following table:

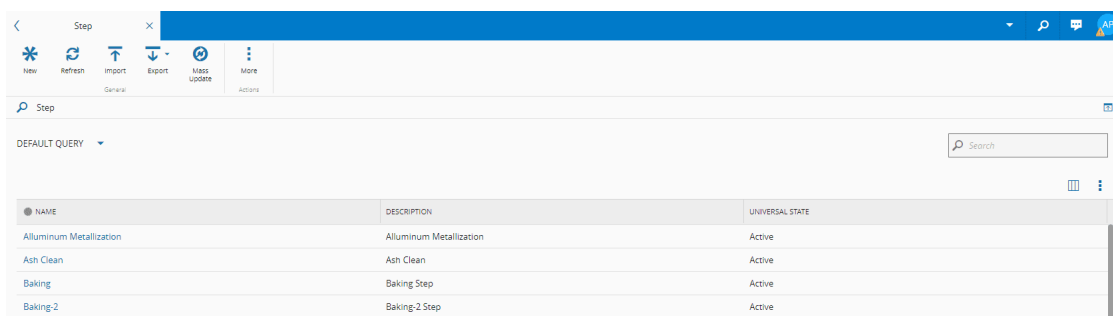
Step Number	Step	Description
1	Enable Is Plan Counting Step	For any Step you intend to use as a counting step for the actual volumes, and you can use as many as you need, the Is Plan Counting Step configuration must be active.
2	Create a Calendar	Has to have calendar days generated.

Table: Steps to set up the Plan-related entities

The next sub-sections will cover the required configuration steps in more detail.

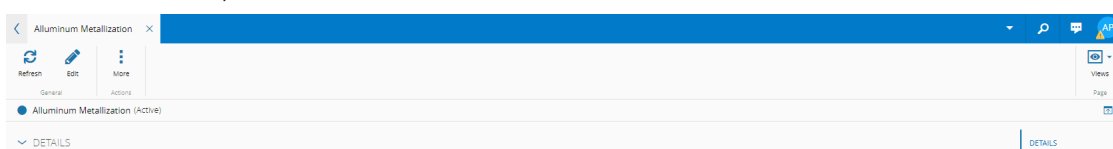
Step 1: Step

1. Select the **Step** you intend to use:



NAME	DESCRIPTION	UNIVERSAL STATE
Aluminum Metallization	Aluminum Metallization	Active
Ash Clean	Ash Clean	Active
Baking	Baking Step	Active
Baking-2	Baking-2 Step	Active

2. Select **Edit** on the top ribbon:



3. Go to **Settings** and enable Is Plan Counting Step:

Edit Step

Settings

Allow Shipping: ☐

Allow Material Transfer: ☒

Allow Decimal Quantity: ☐

Auto Split by Product: ☐

Is Plan Counting Step: ☒

Marks Product Completion: ☐

Enable Step Certification Requirements: ☐

Enable Time Constraints: ☐

Require Instruments at Track-In: ☐

Disassociate Instruments at Track-Out: ☐

Calculate Pass Yield: ☐

* Split Checklist Mode:

Require Map Loss Classifications: ☒

* Default Future Logistic:

Comments:

4. Select **Save**.

Step 2: Calendar

1. Select the **Calendar** you intend to use:

Calendar

DEFAULT QUERY

NAME	DESCRIPTION	UNIVERSAL STATE
My Calendar	My Calendar	Active
Plan_Calendar	Plan_Calendar	Active
Standard	Standard Calendar	Active

2. In **Views**, select Calendar Days:

Plan_Calendar

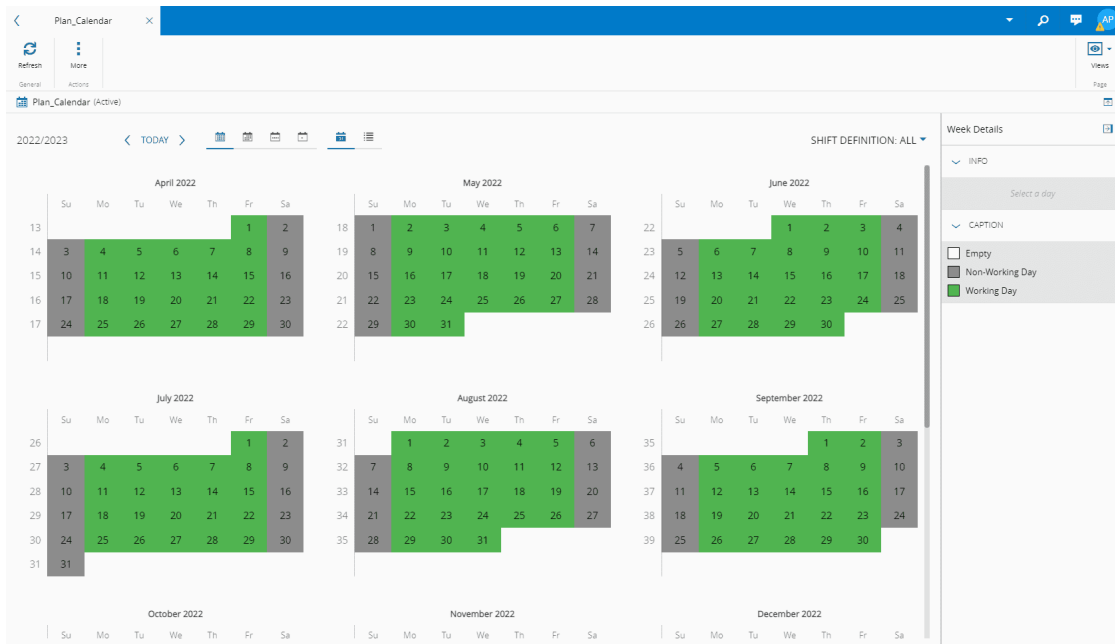
Plan_Calendar (Active)

DETAILS

Calendar	Information
Calendar Name: Plan_Calendar Description: Plan_Calendar Universal State: Active	Time Zone: (UTC+00:00) Dublin, Edinburgh, Lisbon, London Clock-In Early Start (Minutes): 0 Enterprise Wide Reporting: ☒ No

Views:

3. Make sure you have calendar days generated:

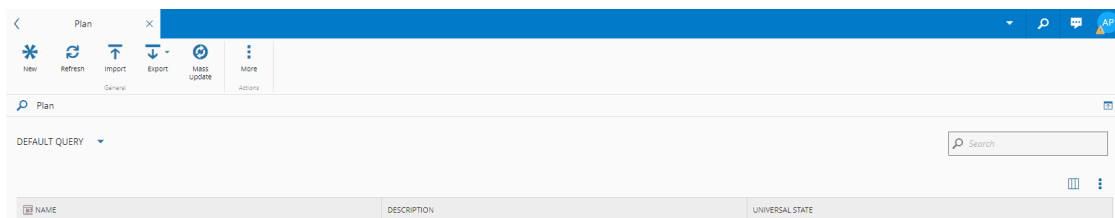


Using Plan

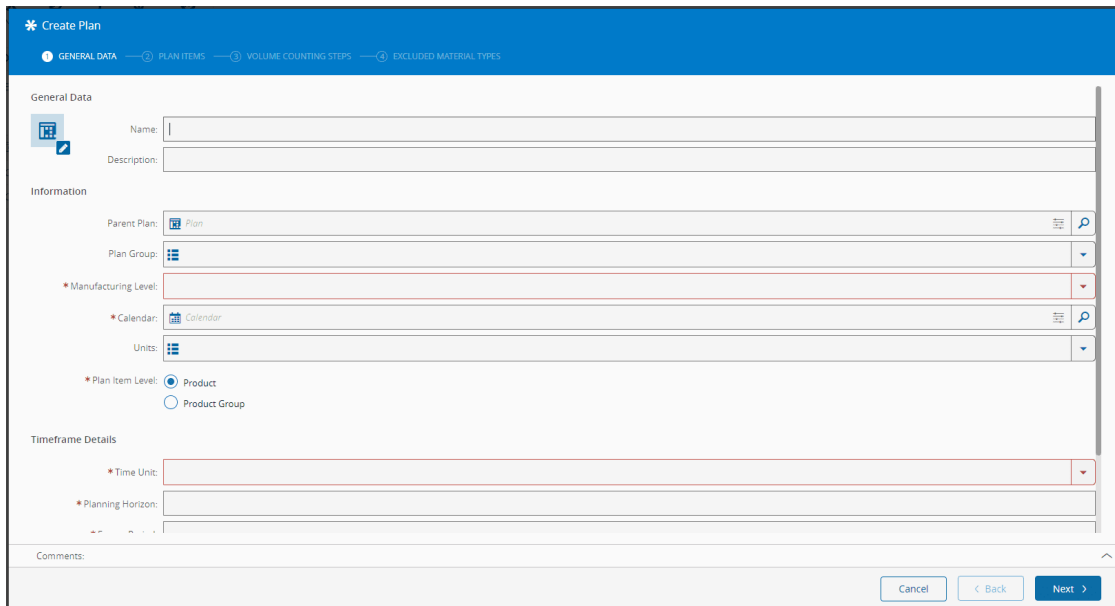
After setting up the required configurations mentioned above, the **Plan** functionality can be used, as described in the next sections.

Create Plan

1. Create your plan:



2. To establish a hierarchy and have all you need to define **Plan** values in detail, complete all fields and wizard steps accordingly, and keep the information below in mind:



3. General Data and Plan Items wizard steps:

- complete the Parent Plan field with an already existing plan.
- complete the Plan Group field with a lookup value, which can be used to classify Plans at the same level and that refer to the same overall process.
- select the Plan Item Level accordingly - Product/Product Group.
- establish the scope and horizon.
- establish the Frozen Period, which will prevent changes to the initial values.
- select the Sub-Plan Synchronization Mode, which automatically defines the terms of breaking down targets.

4. Volume Counting Steps and Excluded Material Types wizard steps:

- define how actual plan values will be counted.
- define the **Step** for counting so when a material reaches it the actual values/volumes will be updated with the quantity of that material.
- it is possible to have multiple counting steps.
- establish additional precision by defining a Flow Path or Logical Flow Path.
- specify material types of materials you do not want to count or exclude.

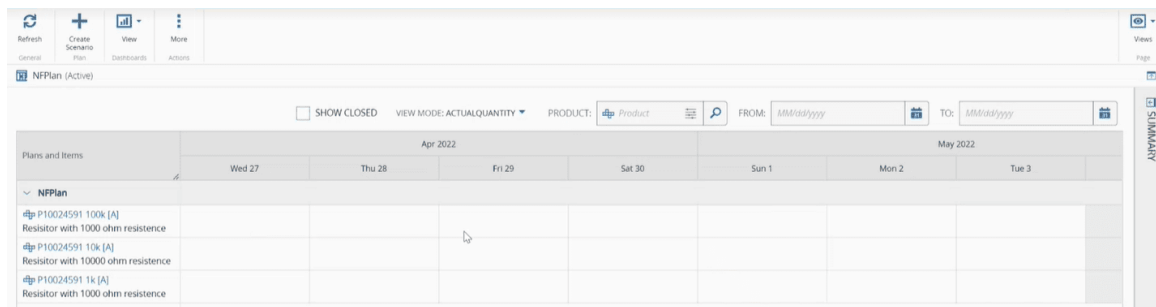
5. At the end select **Create**.

Note

For more information, see [Plan](#).

Create Scenario

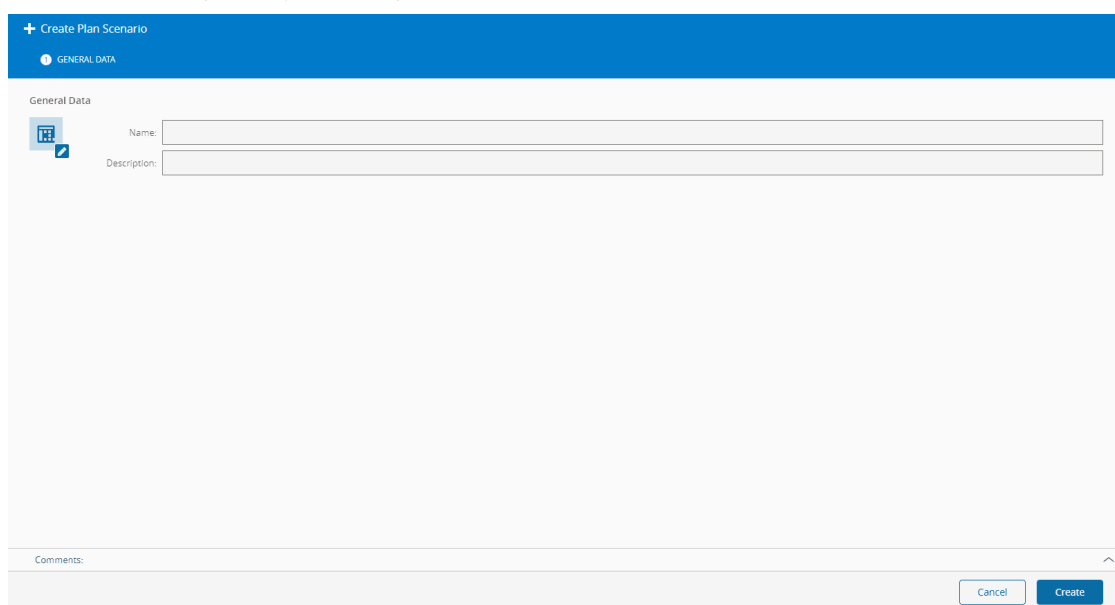
When your **Plan** is created for the first time (this example uses: Area, and Product, and Day), it is empty:



Plans and Items	Wed 27	Thu 28	Fri 29	Sat 30	Sun 1	Mon 2	Tue 3
NPPlan							
P10024591 100k [A] Resistor with 1000 ohm resistance							
P10024591 10k [A] Resistor with 10000 ohm resistance							
P10024591 1k [A] Resistor with 1000 ohm resistance							

For it to have values you need to create a Plan Scenario. Your **Plan** will then be updated based on the Plan Scenario, which is a set of Planned Volumes created at a certain moment in time. Follow the steps below to create your Plan Scenario:

1. Select **Create Scenario** on the top ribbon.
2. Provide a Name, optionally, a Description, and select **Create**.



+ Create Plan Scenario

GENERAL DATA

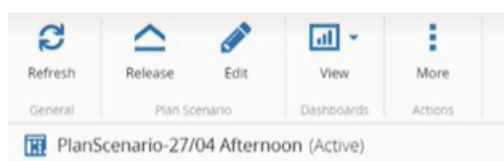
General Data

Name:

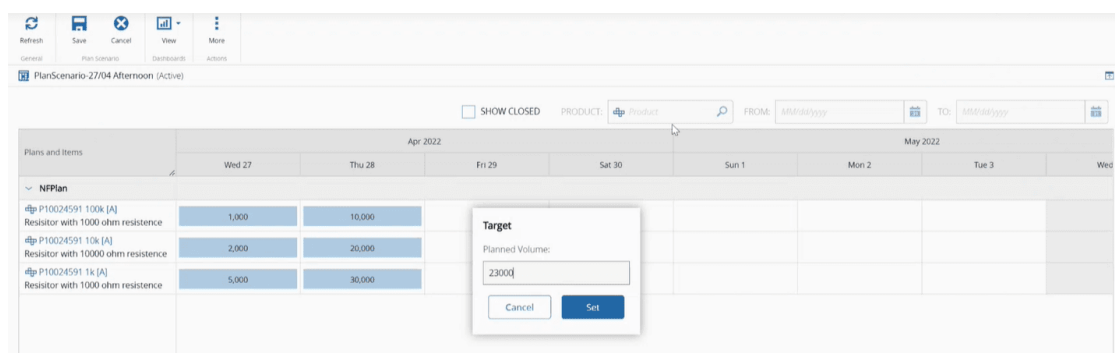
Description:

Comments:

3. Select **Edit** on the top ribbon:



4. Start completing your **Plan** with your planned targets:



Plans and Items	Wed 27	Thu 28	Fri 29	Sat 30	Sun 1	Mon 2	Tue 3	Wed
NPPlan								
P10024591 100k [A] Resistor with 1000 ohm resistance	1,000	10,000						
P10024591 10k [A] Resistor with 10000 ohm resistance	2,000	20,000						
P10024591 1k [A] Resistor with 1000 ohm resistance	5,000	30,000						

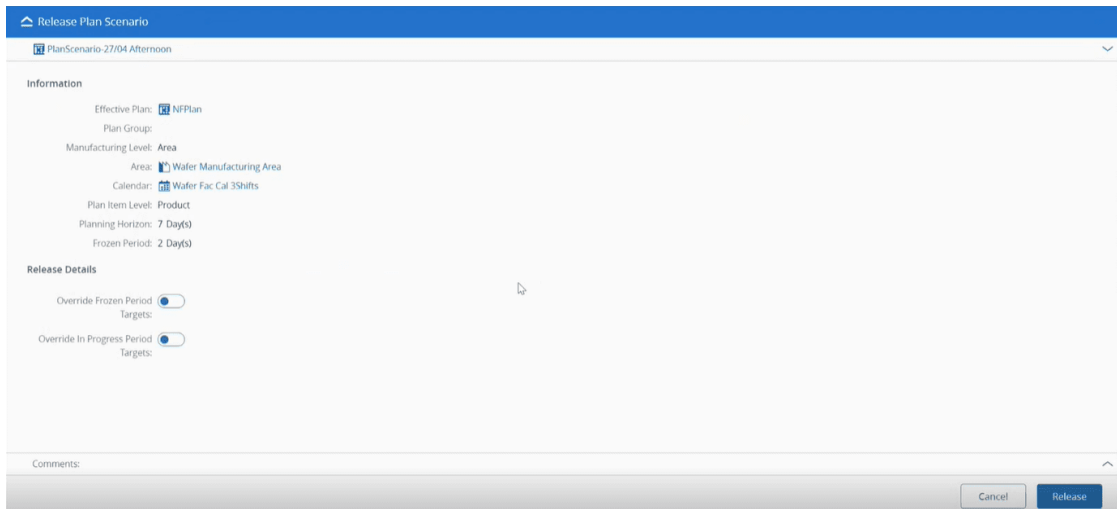
Target

Planned Volume:

Note

These steps done via the GUI can also be achieved by using Master Data Package or API if it is integrated with an external system.

- At the end, select **Save** on the top ribbon.
- Select **Release** on the top ribbon, confirm the page information and select **Release** for your plan to take effect:



Release Plan Scenario

PlanScenario-27/04 Afternoon

Information

Effective Plans: **NFPlan**

Plan Group: **Area**

Manufacturing Level: **Area**

Area: **Wafer Manufacturing Area**

Calendar: **Wafer Fac Cal 3Shifts**

Plan Item Level: **Product**

Planning Horizon: **7 Day(s)**

Frozen Period: **2 Day(s)**

Release Details

Override Frozen Period: ☐

Targets:

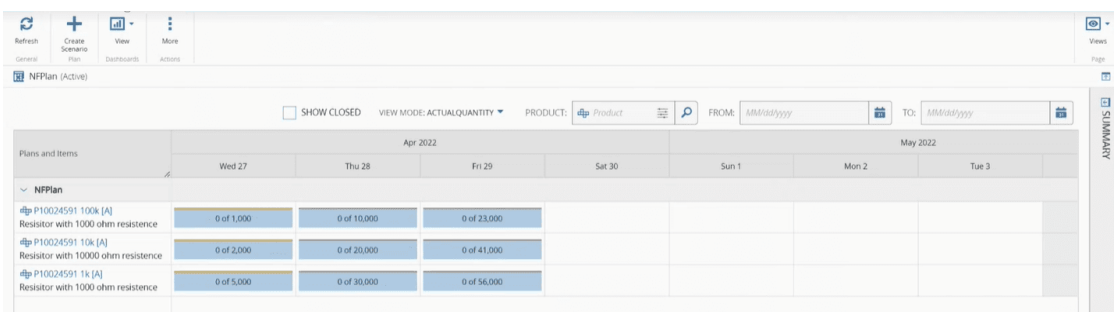
Override In Progress Period: ☐

Targets:

Comments:

Cancel **Release**

- Plan values are displayed as 0 of X, this is, there are currently no actual plan values because no **Material** has been processed:



Refresh Create Scenario View More

General Plan Dashboards Actions

NFPlan (Active)

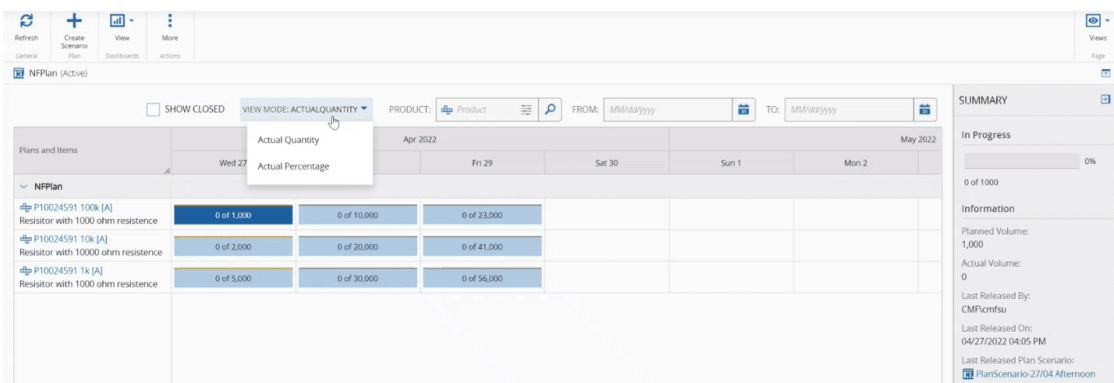
☐ SHOW CLOSED VIEW MODE: ACTUAL QUANTITY PRODUCT: **Product** FROM: **MM/dd/yyyy** TO: **MM/dd/yyyy**

Plans and Items	Apr 27	Thu 28	Fri 29	Sat 30	Sun 1	Mon 2	Tue 3
NFPlan							
P10024591 100k [A] Resistor with 1000 ohm resistance	0 of 1,000	0 of 10,000	0 of 23,000				
P10024591 10k [A] Resistor with 1000 ohm resistance	0 of 2,000	0 of 20,000	0 of 41,000				
P10024591 1k [A] Resistor with 1000 ohm resistance	0 of 5,000	0 of 30,000	0 of 56,000				

SUMMARY

Note

There are two possible view modes, **Actual Quantity** | **Actual Percentage**, and if you select a plan time frame item, a **Summary** view is displayed on the right:



Refresh Create Scenario View More

General Plan Dashboards Actions

NFPlan (Active)

☐ SHOW CLOSED VIEW MODE: ACTUAL QUANTITY **Actual Quantity** **Actual Percentage** PRODUCT: **Product** FROM: **MM/dd/yyyy** TO: **MM/dd/yyyy**

Plans and Items	Apr 27	Fri 29	Sat 30	Sun 1	Mon 2
NFPlan					
P10024591 100k [A] Resistor with 1000 ohm resistance	0 of 1,000	0 of 10,000	0 of 23,000		
P10024591 10k [A] Resistor with 1000 ohm resistance	0 of 2,000	0 of 20,000	0 of 41,000		
P10024591 1k [A] Resistor with 1000 ohm resistance	0 of 5,000	0 of 30,000	0 of 56,000		

SUMMARY

In Progress

0%

0 of 1000

Information

Planned Volume: 1,000

Actual Volume: 0

Last Released By: CMPcmfsu

Last Released On: 04/27/2022 04:05 PM

Last Released Plan Scenario: PlanScenario-27/04 Afternoon

8. From your **Plan** go to **Views**, followed by **Details**.
9. Select **Volume Counting Steps**, open the **Step** and place your **Material** in the **Step**.

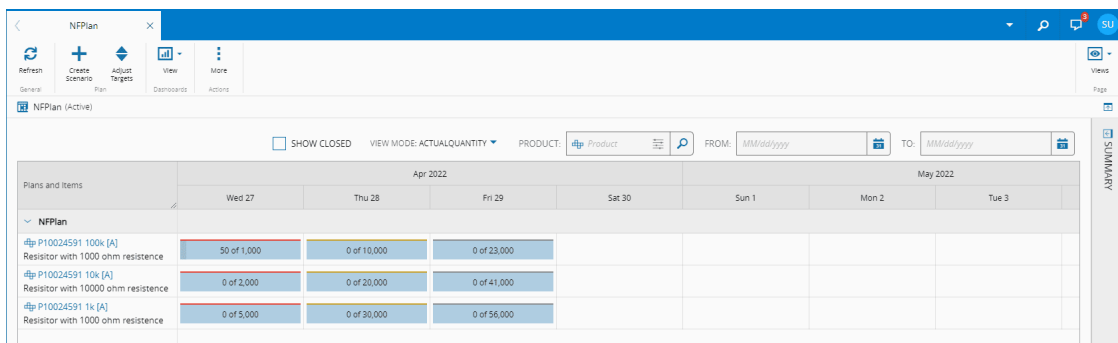
Process Material

1. The **Plan** will be updated with the actual quantities whenever the **Material** is moved to a Plan Counting Step, if:
 - it matches the Product or Product Group of a Plan Item.
 - its Units match the Units of the **Plan**, if defined.
 - its Material Type does not match any of the Excluded Material Types of the **Plan**.

In which case, the **Plan** will be updated with its quantity.

Note

If no Unit is defined, the Primary Quantity of the **Material** will be considered; if it is defined, the Primary or Secondary Quantity will be used, depending on which of the Units of the **Material** match it.

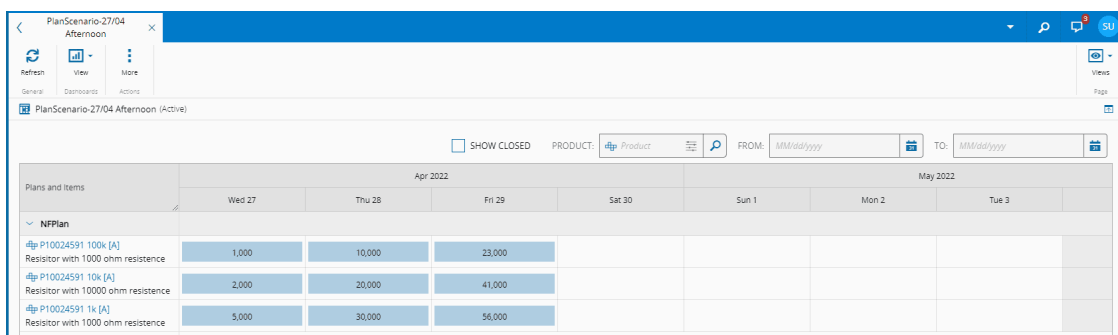


Plans and Items	Apr 2022				May 2022		
	Wed 27	Thu 28	Fri 29	Sat 30	Sun 1	Mon 2	Tue 3
NFPlan							
P10024591 100k [A] Resistor with 1000 ohm resistance	50 of 1,000	0 of 10,000	0 of 23,000				
P10024591 10k [A] Resistor with 10000 ohm resistance	0 of 2,000	0 of 20,000	0 of 41,000				
P10024591 1k [A] Resistor with 1000 ohm resistance	0 of 5,000	0 of 30,000	0 of 56,000				

Note

The most recent data can also be accessed in the **Summary** view.

2. To see what the Planned Values were when a certain Plan Scenario was released, access the **Plan Scenarios** section and open the intended scenario:



Plans and Items	Apr 2022				May 2022		
	Wed 27	Thu 28	Fri 29	Sat 30	Sun 1	Mon 2	Tue 3
PlanScenario-27/04 Afternoon							
P10024591 100k [A] Resistor with 1000 ohm resistance	1,000	10,000	23,000				
P10024591 10k [A] Resistor with 10000 ohm resistance	2,000	20,000	41,000				
P10024591 1k [A] Resistor with 1000 ohm resistance	5,000	30,000	56,000				

Plan Item State

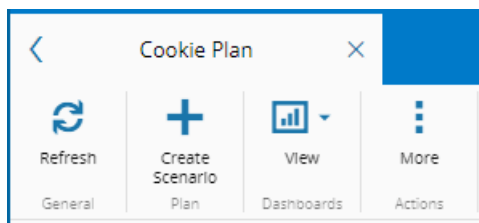
The color shown at the top of each time frame item indicates its execution state as described below:

Color	Execution State
-------	-----------------

Color	Execution State
Red	Target not Reached
Green	Target Reached
Dark Green	Target Overachieved
Yellow	In Progress
Gray	Frozen (Within the Frozen Period)
Blue	Planned (With a Planned Target Value)

Plan Status Overview Dashboard

A Dashboards View button is available on the top ribbon:



This dashboard shows a summary of the most recent time frames:





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