Critical manufacturing
an ASM PT company

Recipe Management

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Recipe Management

Estimated time to read: 16 minutes

As manufacturing relies on increasingly complex equipment, the management of the recipes that the equipment will use for a certain process becomes increasingly important. Not only is this type of management a basic requirement to ensure that the correct recipe with the right parameters is used for the right process, but the recipe information also plays a crucial role in enhancing performance and efficiency.

A **Recipe** can be defined as a program and/or a set of parameters that contains the necessary information for a particular equipment to execute a certain process. Manufacturers today need to cope with a big diversity of equipment (different generations, different suppliers, different automation capabilities) and a huge variety of processes that can run on the same equipment.

The **Recipe Management** module provides capabilities to manage, download, upload, resolve and instantiate **Recipes**.

Info

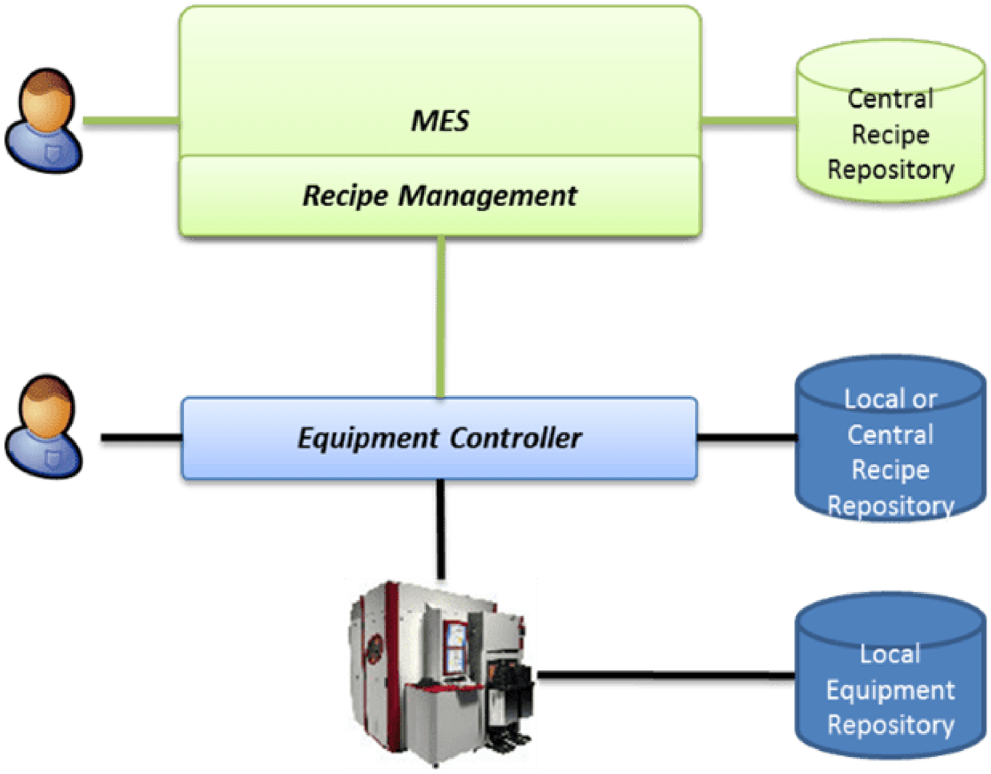
Recipe Management is a separately licensed module.

This document will guide you through the setup and usage of the **Recipe Management** module functionalities.

Overview

A **Recipe** is the necessary information that a specific **Resource** requires to perform a Service on a given **Material**. It consists of an executable body which may or may not be human readable and it may contain several parameters. As more sophisticated and complex the industry becomes, the more critical this functionality becomes to ensure that each material is processed correctly at each equipment.

Recipe Management involves an external system which is the equipment controller as shown in the next figure:


MES
Recipe Management
Central Recipe Repository
Equipment Controller
Local or Central Recipe Repository
Local Equipment Repository

Recipes can be stored and edited centrally in the MES, but often it's the case that they can be edited only in the equipment or equipment controller. The system must therefore support the download and upload of **Recipes** from/to equipment.

The **Recipe** content is often in a binary form, understandable only by the equipment. Additionally, **Recipes** are frequently modified locally at the equipment, so a checksum (CRC) must be used to ensure their integrity.

In order to allow for **Recipes** to be re-used across multiple contexts, and also to support the dynamic resolution of parameters, each **Recipe** can have a collection of Parameters which can be overridden during runtime, for instance for Run-To-Run (R2R) purposes.

Concepts

The table below describes the main concepts related to **Recipe Management**.

Concept	Description
Parameter	An equipment variable to be controlled.
Recipe Parameter	A **Recipe Parameter** qualifies the value of the parameter in the **Recipe**.
Sub-Recipe	A **Sub-Recipe** provides a hierarchical structure to assemble recipes to any depth in order to promote re-usability of **Recipes**.
Recipe Body	A **Recipe** Body refers to the detailed instructions and data necessary for specific equipment to execute a particular process. A **Recipes** Body can be human readable or not. It is often in a binary form, only understandable by the equipment.

Table: Recipe Management main concepts

> **Info**
>
> **Sub-Recipes** are not **Recipes** that are intended to be used in sub-resources.

The Recipe Management object model is shown in the figure below.

```
graph LR
    C1[Recipe Parameter Overrides Context] --- Main[Recipe]
    L1[Recipe Body] --- Main
    C2[Recipe Context] --- Main
    L2[Recipe Parameter] --- Main
    C1 --- L2
    A1[Parameter] --- L2
    Main --- L3[Recipe Instance]
    L3 --- L4[Recipe Instance Parameter]
    Main ---- L5[SubRecipe]
    L5 ----|SubRecipe| Main
    Main --- L6[SubRecipe Parameter]
    L6 --- A1

classDef mermaid_title color:#000, fill:#fafafa, stroke:#fafafa, stroke-width:0x, font-size:100%,
font-weight:200;
classDef mermaid_start color:#000, fill:#fafafa, stroke:#fafafa, color:#fafafa, stroke-width:0x,
font-size:100%, visibility: hidden;
classDef mermaid_businessdata color:#000, fill:#65CDE8, stroke:#65CDE8, stroke-width:0px, font-
size:100%;
classDef mermaid_nonbusinessdata color:#000, fill:#B7DEE8, stroke:#B7DEE8, stroke-width:0px, font-
size:100%;
classDef mermaid_entity color:#000, fill:#FB9F53, stroke:#FB9F53, stroke-width:0px, font-size:100%;
classDef mermaid_entitylinked color:#000, fill:#FCD5B5, stroke:#FCD5B5, stroke-width:0px, font-
size:100%;
classDef mermaid_context color:#000, fill:#B9CDE5, stroke:#B9CDE5, stroke-width:0px, font-
size:100%;
classDef mermaid_optional color:#000, fill:#B7DEE8, stroke:#65CDE8, stroke-width:1px, font-
size:100%, stroke-dasharray: 5 5;
class Main mermaid_entity
class A1,A2,A3,A4,A5,A6,A7,A8,A9,A10 mermaid_businessdata
class L1,L2,L3,L4,L5,L6 mermaid_entitylinked
class C1,C2,C3,C4,C5,C6 mermaid_context
class N1,N2,N3,N4,N5,N6 mermaid_nonbusinessdata

click Main "../../userguide/business-data/recipe"
click A1 "../../userguide/business-data/parameter"
click C1 "../../userguide/administration/tables/smart-tables/recipeparameteroverridecontext"
click C2 "../../userguide/administration/tables/smart-tables/recipecontext"
click L5 "../../userguide/business-data/recipe"
```

The MES **Recipe** object model is based on SEMI E139, as shown in the table below. The SEMI E139 Recipe and Parameter Management is a standard developed to specify the cooperative interaction between the factory information and control system (*FICS*) and the equipment in order to manage the specifications of equipment processing (for instance, equipment recipes).

The PDE (Process Definition Element) translates from the SEMI E139 into a **Recipe** in Critical Manufacturing, with the following element matching:

SEMI E139	Critical Manufacturing	Description
uid - universally unique identifier	`Id`	Recipe Id
Name	`Name`	Recipe Name

SEMI E139	Critical Manufacturing	Description
Description	`Description`	Recipe Description
type	`Type`	Recipe Type
executable	`IsExecutable`	Defines if a Recipe is executable or not.
userInfo	`UserInfo`	Recipe User Information
supplierInfo	`SupplierInfo`	Recipe Supplier Information
author	`CreatedBy`	The User who created the Recipe.
Specification (PDEBody or PDEBodyReference)	`Body`	Recipe Body
specificationChecksum	`Checksum`	Recipe Body Checksum
{PDEHeader/PDEParameter}	{`RecipeParameter`}	Recipe Parameters
{PDEHeader/PDEParameter/relatedParameters}	{`SubRecipeParameter`}	Recipe Sub-Recipe Parameters

Table: SEMI E139 and Critical Manufacturing MES concepts

Info

Checksum is a single unique value calculated from a sequence of data (a file, a string, etc.) that uniquely identifies that data. It is sometimes called a “digital fingerprint” or a “message digest”.

Setting Up a Recipe

The necessary steps to set up a **Recipe** shall be explained over the next sections.

Create a Parameter

A **Parameter** provides an abstraction to Resource specific variable names which have the same meaning at the MES/human level. A **Recipe** can contain static or dynamic Parameters.

To create a **Parameter** to be used in a **Recipe**, the properties listed in the table below need to be defined.

Property	Description
Scope	It needs to be defined as `Recipe` or `EDC_SPC_Recipe`. If the parameter scope is `Recipe`, it can only be used on the **Recipe** entity. For more information about **Parameters**, please check the Parameter section.

Property	Description
Data Type	The **Parameter** Data Type.
Format	The defined Format will influence the value input and display. For more information about the **Parameter** Formats, please refer to the Create Parameter section.
Units	The Units of the **Parameter** to be displayed.
Minimum Value	A minimum value for the **Parameter**, only for numeric Parameters.
Maximum Value	A maximum value for the **Parameter**, only for numeric Parameters.
Lookup Table	A Lookup Table to be used as a source of values for the **Parameter**. The Lookup Table values must match the Data Type of the **Parameter**.

Table: Parameter creation wizard properties

Create a Recipe

To create a **Recipe** there are configurations regarding its **Parameters**, **Sub-Recipes** and Body that need to be defined in advance.

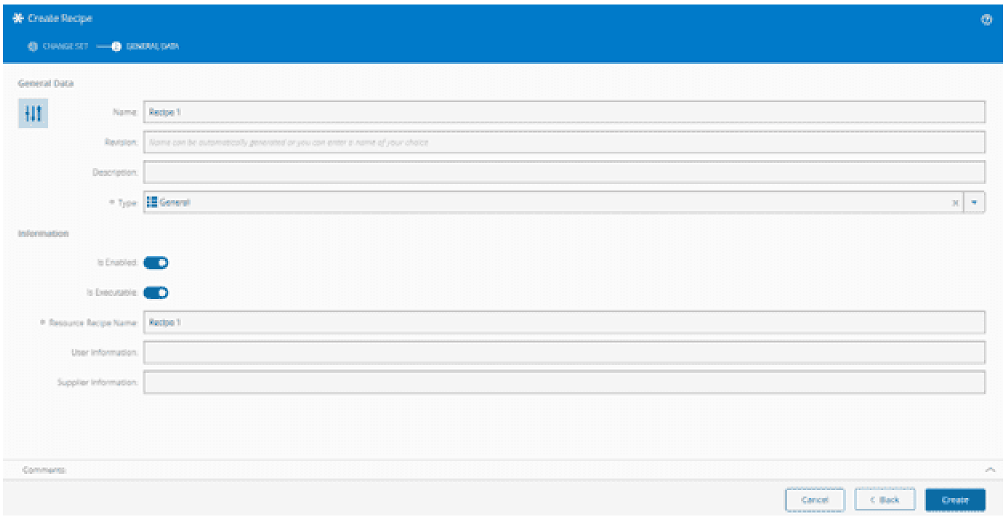
The next table describes the properties that need to be taken into consideration when creating a **Recipe**, the first step of **Recipe** creation.

Property	Description
IsEnabled	Defines if a **Recipe** is enabled or not. A disabled **Recipe** cannot be used to create a **Recipe** instance.
IsExecutable	Defines if a **Recipe** is executable or not. An Executable **Recipe** can be used as the **Recipe** for a Material, whereas a non-Executable **Recipe** can only be used as a **Sub-Recipe**.
Resource Recipe Name	The Resource Recipe Name should match the local **Recipe** name in the equipment. The Resource Recipe Name and the **Recipe** name can have the same name.

Table: Recipe creation wizard properties

Info

The `IsEnabled` and `IsExecutable` properties are contained in the global data components of the **Recipe** (i.e., without Change Control required). For more information, see Recipe.



Name: Recipe 1

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

Description:

* Type: General

Is Enabled: ●

Is Executable: ●

* Resource Recipe Name: Recipe 1

User Information:

Supplier Information:

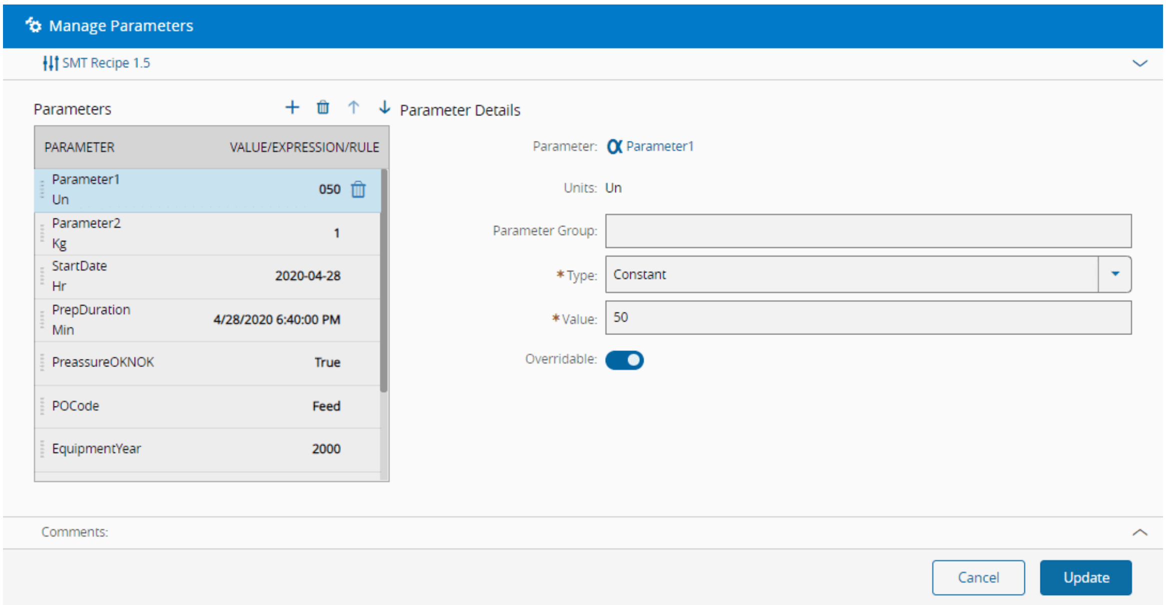
To manage the **Recipe Parameters**, the User must access the *Manage Parameters* wizard in the **Recipe** page, as shown in the table and figure below.

Property	**Description**
Parameter Group	Defines the Parameter Group name for display purposes.
Type	The following options are available: - **Constant**: a constant value - **Expression**: an Expression that calculates the **Parameter** value based on other **Parameters**. **Parameters** referred by the Expression must be defined before adding the Expression Parameter - **Input**: a value provided by the User or supplied by the parent **Recipe** - **Rule**: a Rule to be used to evaluate the **Parameter** value
Value	The value of the **Parameter** if the Type is **Constant** or **Input**.
Expression	The Expression to be used to calculate the **Parameter** if the type is Expression. For more information about the Expression syntax, please refer to the Expression Evaluator section.
Rule	The Rule to be used to evaluate the **Parameter** value. The Rule must have the scope defined as *Recipe Management*.
Overridable	Defines if a **Parameter** is Overridable. An Overridable **Parameter** may have its value changed depending on the RecipeParameterOverrideContext Smart Table configuration.

Table: Parameter management wizard properties

Info

If a **Parameter** has Minimum or Maximum values defined, values outside this interval cannot be defined on the Value property.



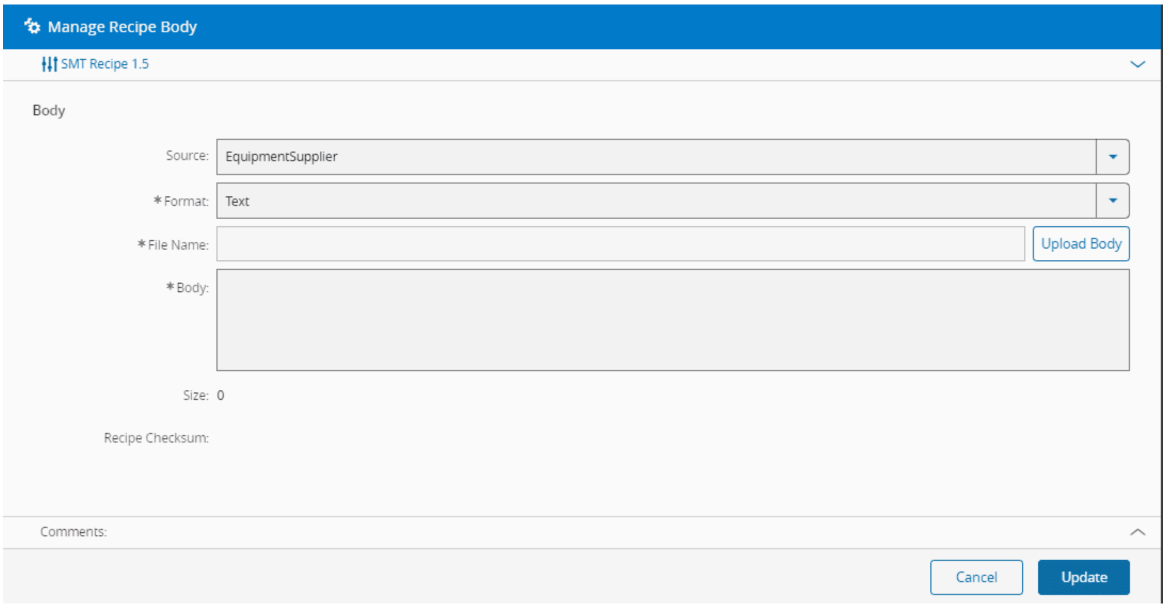
PARAMETER	VALUE/EXPRESSION/RULE
Parameter1 Un	050
Parameter2 Kg	1
StartDate Hr	2020-04-28
PrepDuration Min	4/28/2020 6:40:00 PM
PreassureOKNOK	True
POCode	Feed
EquipmentYear	2000

Parameter: Parameter1
Units: Un
Parameter Group:
*Type: Constant
*Value: 50
Overridable: ●

To manage the Recipe Body, the User must access the *Manage Recipe Body* wizard in the Recipe page, as shown in the table and figure below.

Property	Description
Source	The Source of the **Recipe**. The following options are available: - **DownloadedFromEquipment**: MES will retrieve the **Recipes** from a **Resource** whose RecipeManagement property is enabled and whose automation mode is online and that supports recipe download. These settings are defined in the resource and can be edited in the additional information tab. For more information, please check the Resource section. - **EquipmentSupplier**: MES will send the Recipe body to the **Resource**. Recipe provided by the equipment supplier. - **HumanEdited**: MES will send the Recipe body to the **Resource**. Recipe created by the user. - **None**: Recipe body is not validated.
Format	The **Recipe** Format. The following options are available: - **Binary**: always set when the **Recipe** is *DownloadedFromEquipment* and available for selection for the *EquipmentSupplier* and *HumanEdited* Sources - **Text**: available for selection for the *EquipmentSupplier* and *HumanEdited* Sources - **URL**: available for selection for the *EquipmentSupplier* and *HumanEdited* Sources
Download From:	Selection of a Resource, if the selected Source is *DownloadedFromEquipment*.
Resource Recipe:	Selection of a Resource **Recipe**, if the selected Source is *DownloadedFromEquipment*.
Recipe Checksum:	It is used to ensure **Recipe** integrity since **Recipes** are often locally modified at the equipment.
File Name:	If the selected Format was *URL*, then the User must provide a *URL*. If the selected Format was *Binary*, then the User must provide a file. If the selected Format was a *Text* then the User can choose to load a file and edit the contents manually.

Table: Manage Recipe Body wizard properties


Manage Recipe Body

SMT Recipe 1.5

Body

Source: EquipmentSupplier

* Format: Text

* File Name:

* Body:

Size: 0

Recipe Checksum:

Comments:

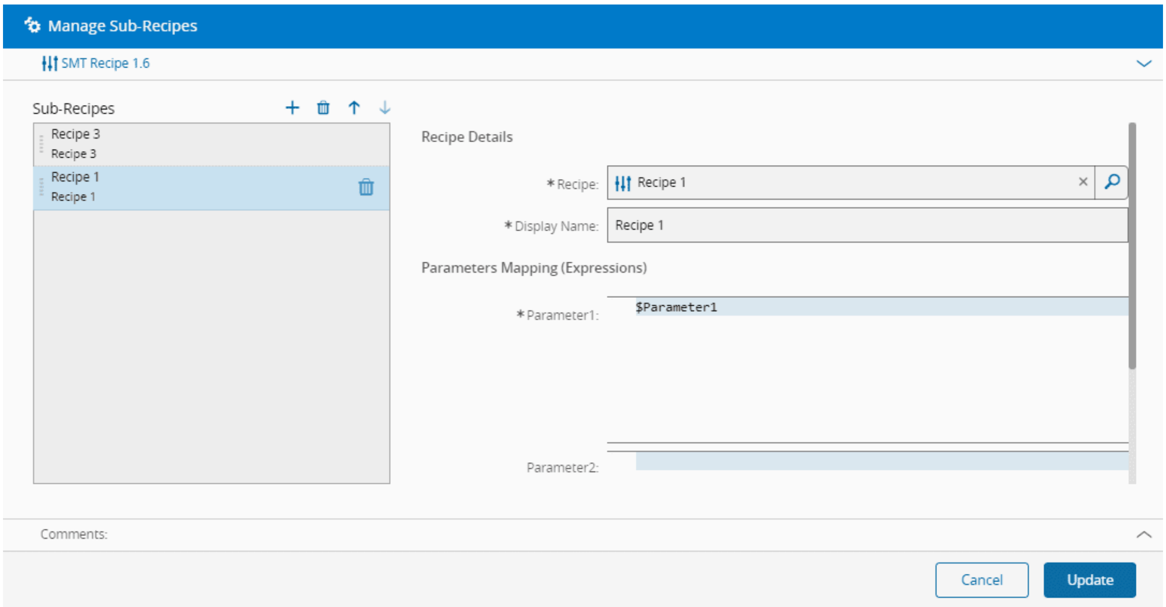
Info

There are no setup differences between the **Recipe** Body Source `EquipmentSupplier` and `HumanEdited`.

To manage the **Sub-Recipes**, the User must access the Manage Recipe Sub-Recipes wizard in the **Recipe** page, as shown in the table and figure below.

Property	Description
Recipe	The **Recipe** to be defined as a **Sub-Recipe**.
Display Name	The **Recipe** display Name.
Parameter Mapping	For each Sub-Recipe, it is mandatory to define the Parameter mapping for the Sub-Recipe Parameters which are of type Input and have no default value. For the Sub-Recipe Parameters which are Overridable, it is possible (but not mandatory) that the Sub-Recipe Parameters mappings are defined as well. A Parameter mapping is based on an expression that refers to the Parent Recipe Parameters.

Table: Manage Sub-Recipes wizard properties



Sub-Recipes:
- Recipe 3 / Recipe 3
- Recipe 1 / Recipe 1

Recipe Details

*Recipe: Recipe 1

*Display Name: Recipe 1

Parameters Mapping (Expressions)

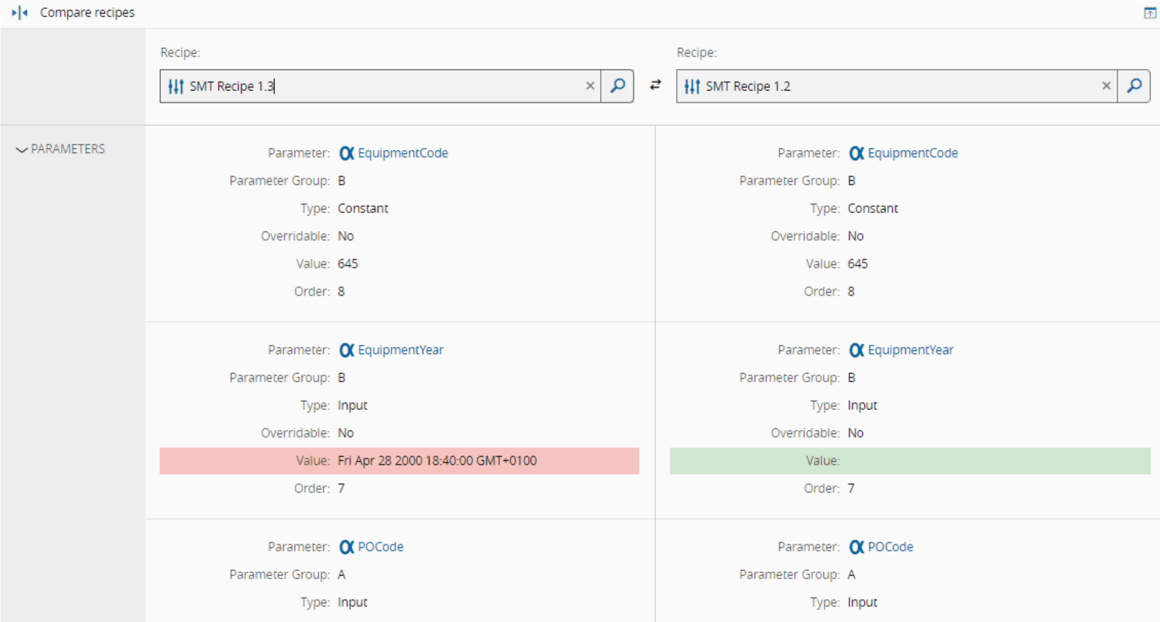
*Parameter1: $Parameter1

Parameter2:

Comments:

Compare Recipes

The Compare Recipes page provides the functionality to verify not only changes in **Recipe** Versions, but also to compare different **Recipes**, as shown on the figure below.



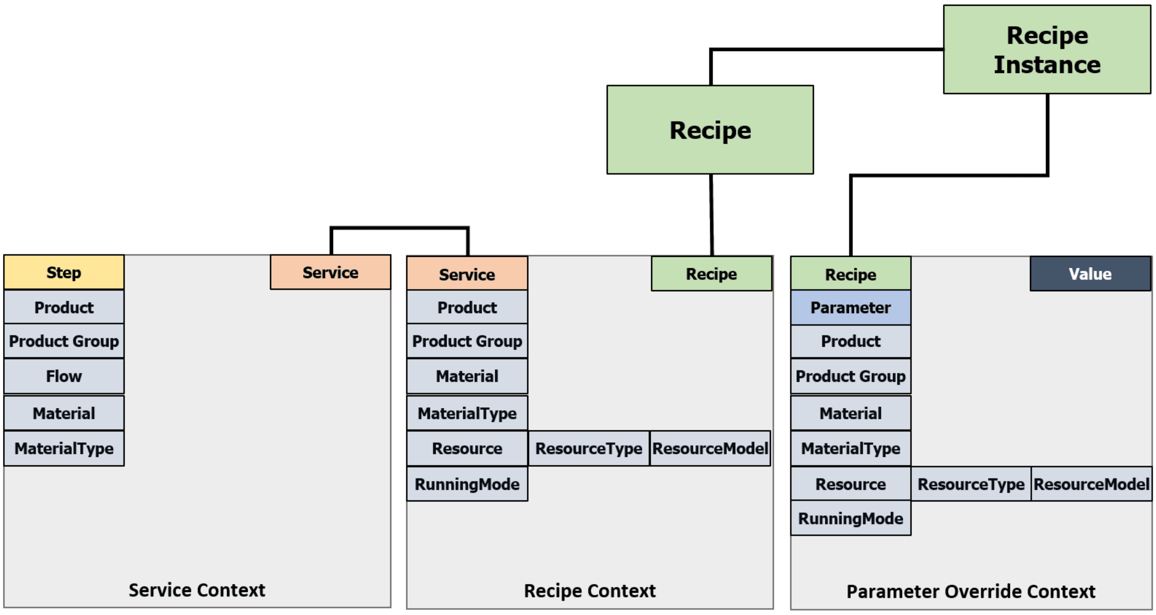
	Recipe: SMT Recipe 1.3	Recipe: SMT Recipe 1.2
Parameter:	EquipmentCode	EquipmentCode
Parameter Group:	B	B
Type:	Constant	Constant
Overridable:	No	No
Value:	645	645
Order:	8	8
Parameter:	EquipmentYear	EquipmentYear
Parameter Group:	B	B
Type:	Input	Input
Overridable:	No	No
Value:	Fri Apr 28 2000 18:40:00 GMT+0100	
Order:	7	7
Parameter:	POCode	POCode
Parameter Group:	A	A
Type:	Input	Input

Recipe Context Resolution and Recipe Instance Creation

A **Material** requires a **Service** at a **Step**, as defined in the ServiceContext Smart Table, and this **Service** is provided by a **Resource**. For this Service, in order to provide the necessary setup and configuration information to process a Material in a Resource, the *Recipe Context* is defined.

For a particular **Material** Context, the MES creates a **Recipe** Instance when performing a Material track-in. The **Recipe** Instance stores the used **Recipe** Version and Parameter information for traceability and analysis purposes.

The relationship between the above presented concepts can be found in the figure below.



Manage Recipe Context

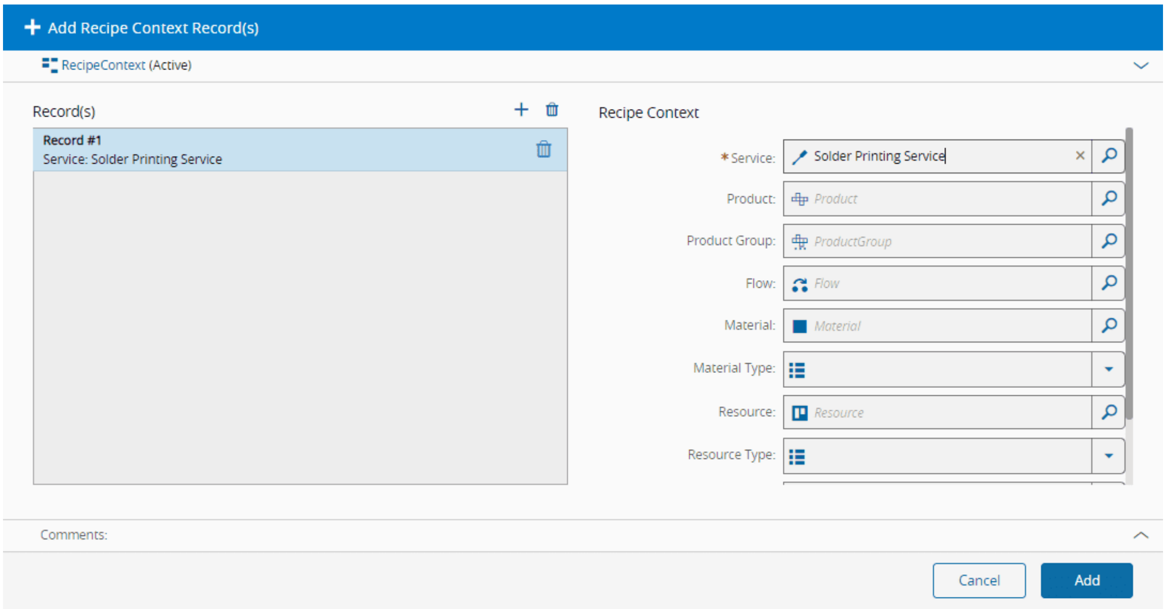
A **Recipe** is configured for processing a **Material** in a **Step** and **Resource** through the Service defined in the ResourceRunningMode table, as detailed in the table and figure below.

Info

A Recipe needs to be marked as *Executable* to be referenced on the RecipeContext table.

Property	Description
Service	The **Service** which requires the **Recipe**.
Running Mode	The Running Mode provides an additional flexibility degree in maintaining and resolving Recipes in the case that the Recipe to be used depends on a particular Resource configuration. The Running Mode can be defined on the ResourceRunningMode Smart Table.

Table: Add Recipe Context Record



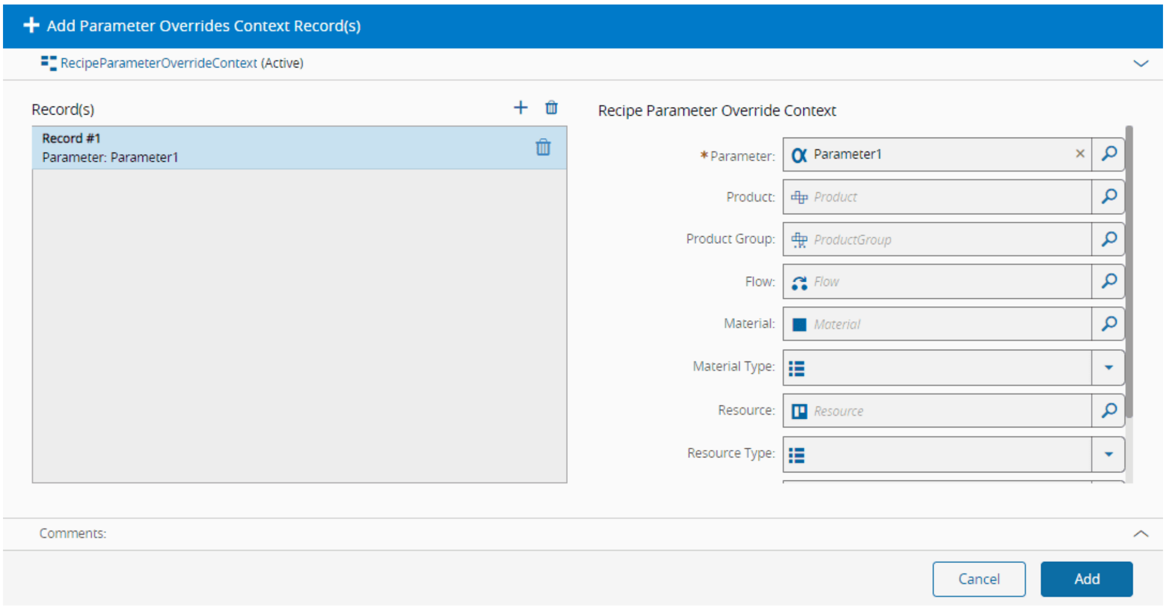
Manage Parameter Overrides Context

To promote **Recipe** reusability and to support a dynamic resolution of Parameters during runtime, a **Parameter** can be marked as overridable.

> **Info**
>
> A **Parameter** needs to be marked as overridable on the Recipe Parameters to be referenced on the *Recipe Parameter Override Context* table.

Property	Description
Parameter	The Parameter to be overridden.
Value	The Value to be considered for the Parameter on the defined context.

Table: Add Parameter Overrides Context Record



Add Parameter Overrides Context Record(s)
RecipeParameterOverrideContext (Active)
Record(s)
Cancel
Add

Record #1
Parameter: Parameter1

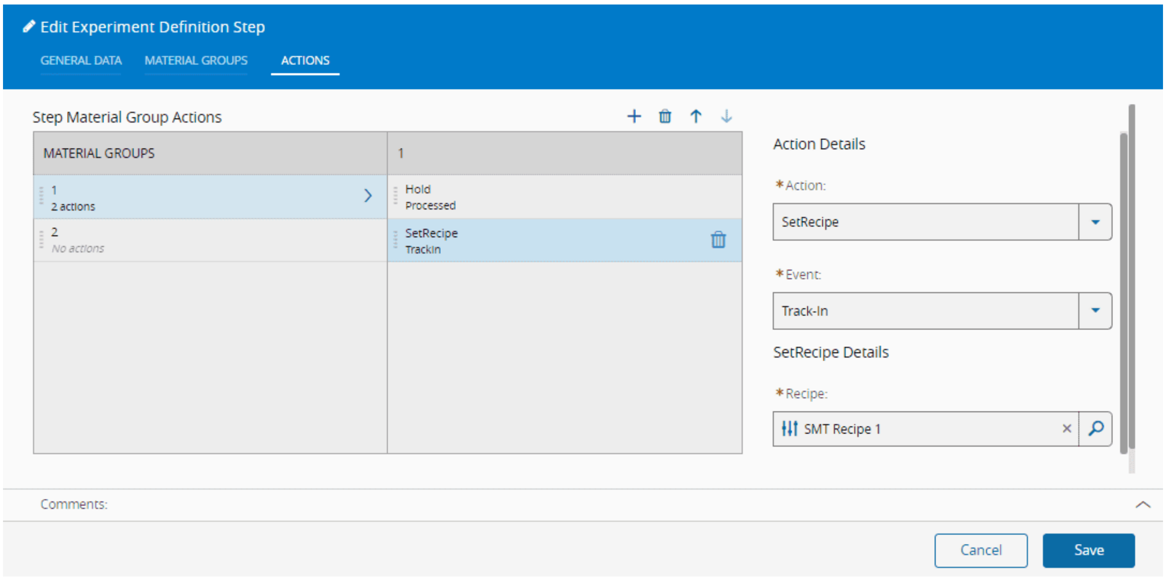
Recipe Parameter Override Context

*Parameter:	Parameter1
Product:	Product
Product Group:	ProductGroup
Flow:	Flow
Material:	Material
Material Type:	
Resource:	Resource
Resource Type:	

Comments:

Experiment Definition

An **Experiment Definition** allows the User to carry out controlled variations of the production process. A typical use case for this situation is the creation of an **Experiment Definition** in order to test a new **Recipe**. This can be configured by defining the Action *SetRecipe* at the Track-in Event for an **Experiment Definition** Material Group, as shown in the figure below.



Step Material Group Actions

MATERIAL GROUPS	1
1 2 actions	Hold Processed
2 No actions	SetRecipe TrackIn

Action Details

*Action: SetRecipe

*Event: Track-In

SetRecipe Details

*Recipe: SMT Recipe 1

Comments:

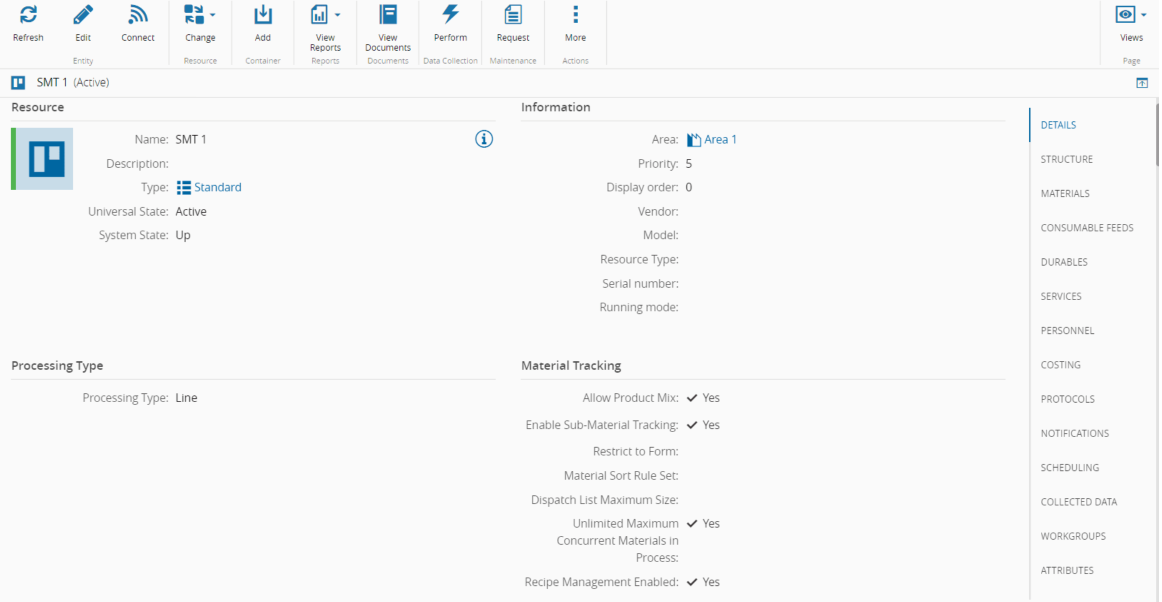
For more information about the **Experiment Definition**, see the Create Experiment Definition section.

Using a Recipe

Over the next sections it is detailed how a Recipe can be used in MES.

Resource Configuration

In order to use Recipe Management for a particular Resource, it is necessary to set the property *Recipe Management Enabled* to true, as shown in the figure below.



SMT 1 (Active)

Resource

Name: SMT 1
Description:
Type: Standard
Universal State: Active
System State: Up

Information

Area: Area 1
Priority: 5
Display order: 0
Vendor:
Model:
Resource Type:
Serial number:
Running mode:

Processing Type

Processing Type: Line

Material Tracking

Allow Product Mix: ✓ Yes
Enable Sub-Material Tracking: ✓ Yes
Restrict to Form:
Material Sort Rule Set:
Dispatch List Maximum Size:
Unlimited Maximum Concurrent Materials in Process: ✓ Yes
Recipe Management Enabled: ✓ Yes

Set Resource Recipe

When the setup is performed manually, the User can access the *Set Recipe* wizard in order to select the **Recipe** to be set on the Resource, as shown in the figure below.

If the option *Validate Recipe Context* is set to True, then only **Recipes** that are defined on the **Recipe** Context are displayed.

After selecting the **Recipe**, it is set as the Current **Recipe** and the Current **Recipe** Source is set as User.

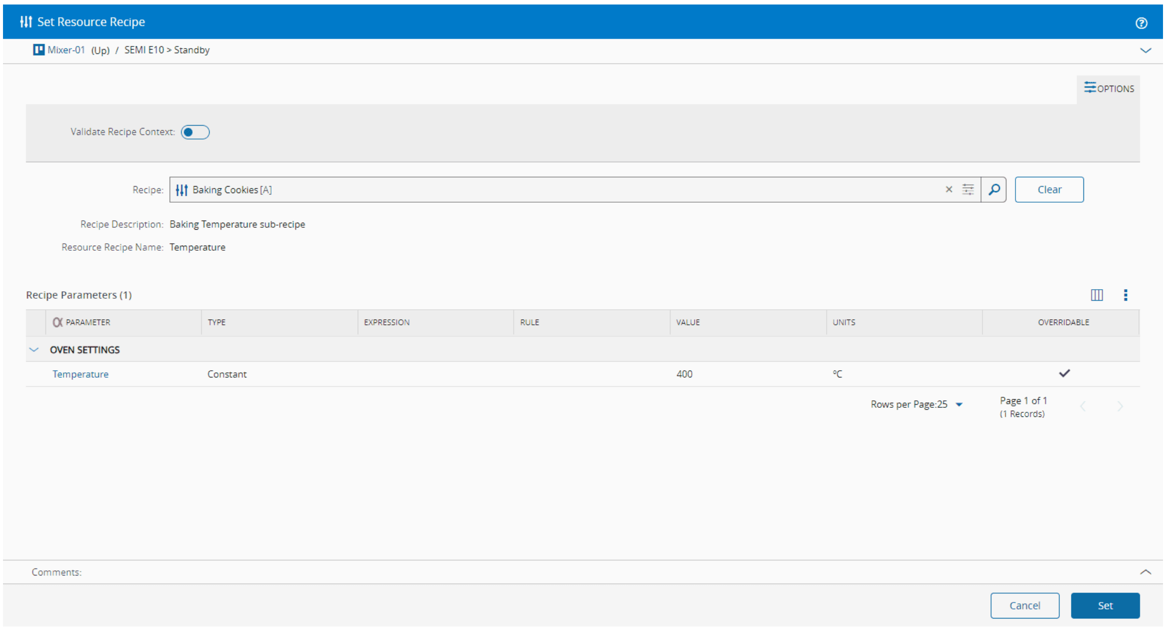
In this wizard it is also possible to clear the Resource Current Recipe, by selecting *Clear* and then *Set*.

Info

When a **Recipe** is set manually, it can only be reset manually as well.

Info

The Resource must have the property *Recipe Management Enabled* set to True.



Set Resource Recipe

Mixer-01 (Up) / SEMI E10 > Standby

Validate Recipe Context:

Recipe: Baking Cookies [A]

Recipe Description: Baking Temperature sub-recipe

Resource Recipe Name: Temperature

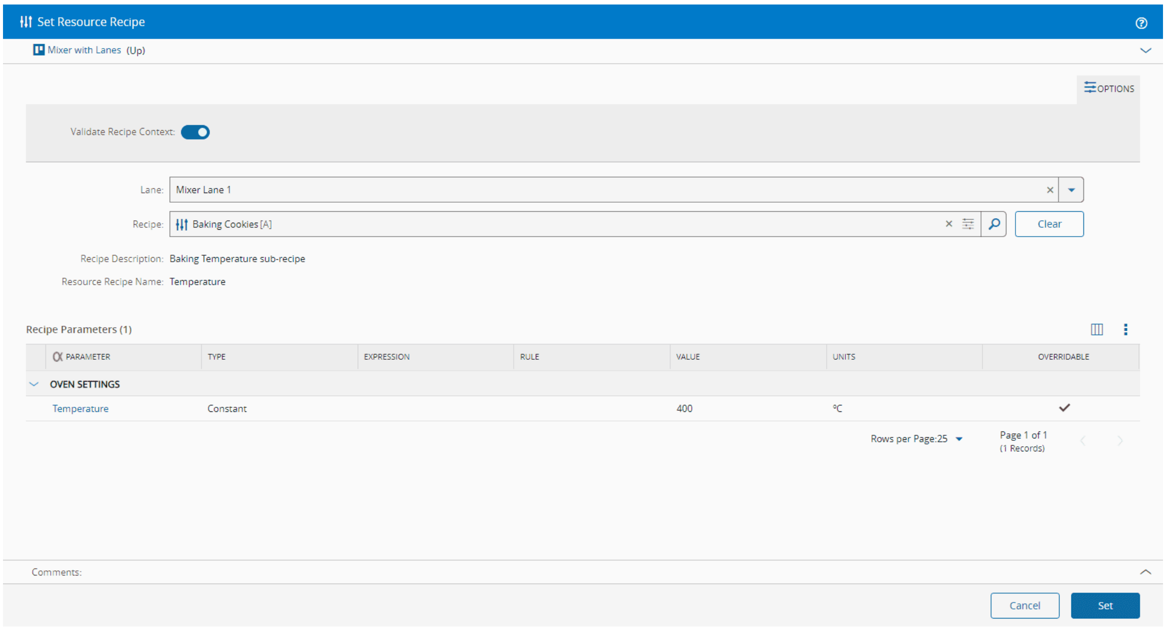
Recipe Parameters (1)

PARAMETER	TYPE	EXPRESSION	RULE	VALUE	UNITS	OVERRIDABLE
OVEN SETTINGS						
Temperature	Constant			400	ºC	✓

Rows per Page:25 Page 1 of 1 (1 Records)

Comments:

If the **Resource** has lanes configured and Is Multilane Active enabled, you will have to select a valid Lane of the **Resource** for your **Recipe**.



Set Resource Recipe

Mixer with Lanes (Up)

Validate Recipe Context:

Lane: Mixer Lane 1

Recipe: Baking Cookies [A]

Recipe Description: Baking Temperature sub-recipe

Resource Recipe Name: Temperature

Recipe Parameters (1)

PARAMETER	TYPE	EXPRESSION	RULE	VALUE	UNITS	OVERRIDABLE
OVEN SETTINGS						
Temperature	Constant			400	ºC	✓

Rows per Page:25 Page 1 of 1 (1 Records)

Comments:

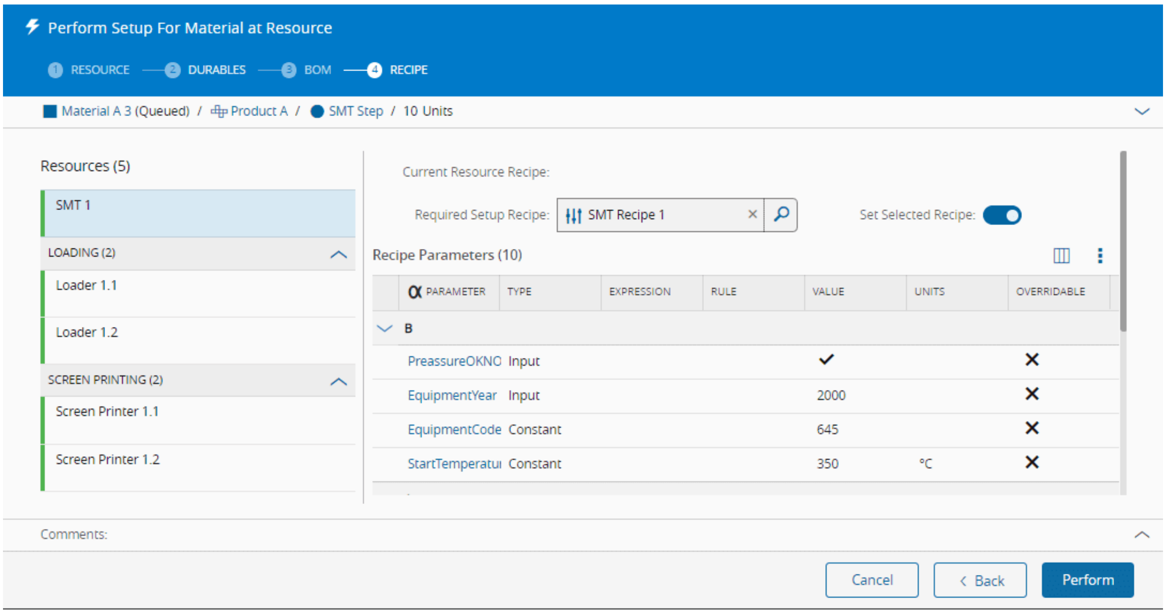
For more information, see Set Resource Recipe.

Perform Resource Setup

Before tracking-in a Material in a Resource it is possible to perform the Resource setup. The *Perform Setup For Material at Resource* wizard is available on the Resource view after selecting a Material, as shown in the figure below.

> **Info**
>
> Only **Recipes** that are defined on the Recipe Context are displayed.

If the option *Set Selected Recipe* is set to True, then the User has the option to set it manually at the Resource. The selected **Recipe** is set as the Resource Current Recipe and Current Recipe Source is set as User.



Perform Setup For Material at Resource

1 RESOURCE — 2 DURABLES — 3 BOM — 4 RECIPE

Material A 3 (Queued) / Product A / SMT Step / 10 Units

Resources (5)

SMT 1

LOADING (2)

Loader 1.1

Loader 1.2

SCREEN PRINTING (2)

Screen Printer 1.1

Screen Printer 1.2

Current Resource Recipe:

Required Setup Recipe: SMT Recipe 1

Set Selected Recipe: ●

Recipe Parameters (10)

PARAMETER	TYPE	EXPRESSION	RULE	VALUE	UNITS	OVERRIDABLE
B						
PreassureOKNO	Input			✓		✗
EquipmentYear	Input			2000		✗
EquipmentCode	Constant			645		✗
StartTemperatu	Constant			350	°C	✗

Comments:

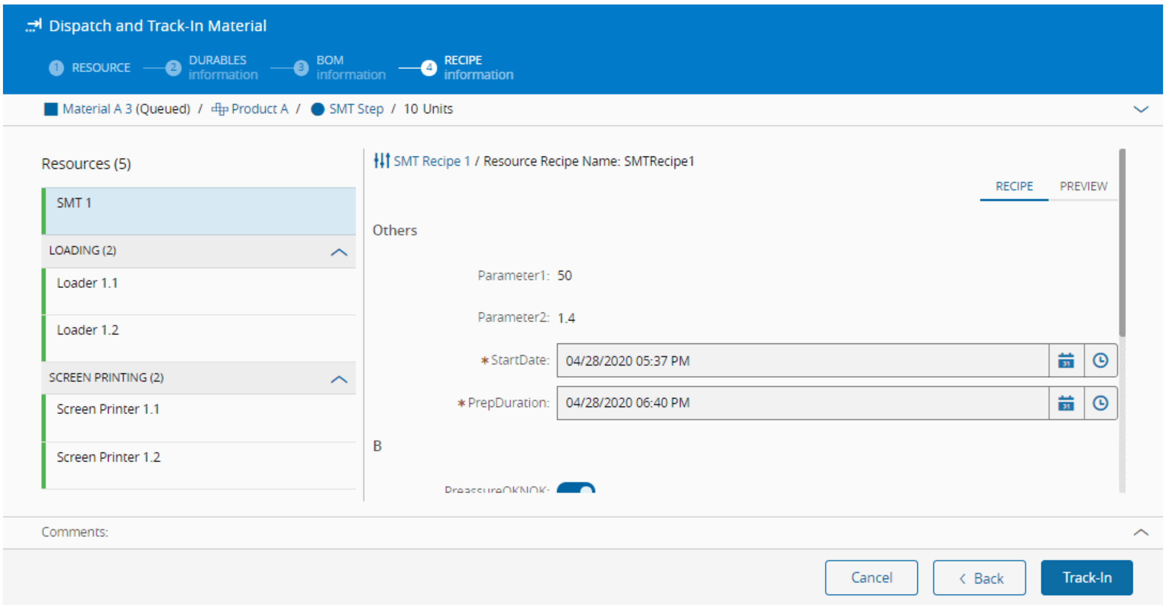
Material Track-in

When a Material is tracked-in, the **Recipe** defined in the RecipeContext is displayed, as shown in the figure below.

For the **Recipe** Input Parameters, it is possible to specify their values.

Info

A Parameter needs to be marked as Overridable on the Recipe Parameters to be referenced on the Recipe Parameter Override Context table. If the automation mode from the resource is `Online`, track in will be done automatically. The recipe is validated if the recipe management and `Verify Material Recipe at Track-In` are enabled.



Dispatch and Track-In Material

1 RESOURCE — 2 DURABLES information — 3 BOM information — 4 RECIPE information

Material A 3 (Queued) / Product A / SMT Step / 10 Units

Resources (5)

SMT 1

LOADING (2)

Loader 1.1

Loader 1.2

SCREEN PRINTING (2)

Screen Printer 1.1

Screen Printer 1.2

SMT Recipe 1 / Resource Recipe Name: SMTRecipe1

Others

Parameter1: 50

Parameter2: 1.4

*StartDate: 04/28/2020 05:37 PM

*PrepDuration: 04/28/2020 06:40 PM

B

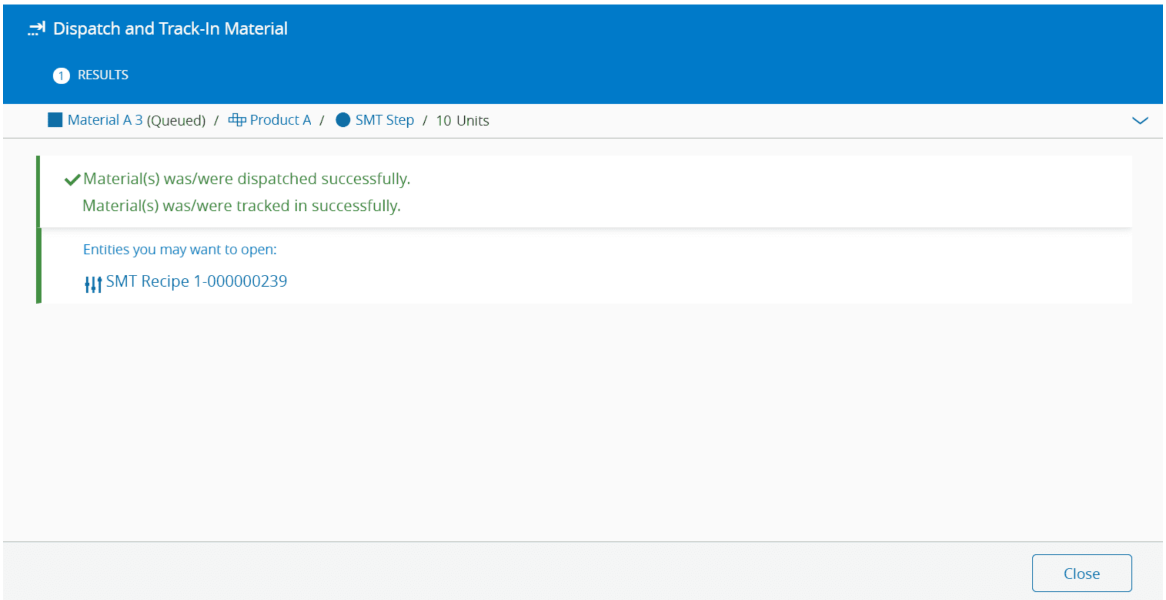
PreassureOKNOK: ●

Comments:

Info

The Resource property `Verify Material Recipe at Track-In` defines whether the System will validate if the Resource Current Recipe matches the defined RecipeContext when tracking-in material. If the `Verify Material Recipe at Track-In` is set to `False` and the Current Recipe Source is System, then it is possible to track-in the Material even if the Resource Current Recipe does not match the defined RecipeContext.

After performing the track-in, the resolved **Recipe** is set as the Resource Current Recipe, if not already, in which case the Current Recipe Source is set as System, and a Recipe Instance is created, as shown in the figure below.


Dispatch and Track-In Material
1 RESULTS
Material A 3 (Queued) / Product A / SMT Step / 10 Units

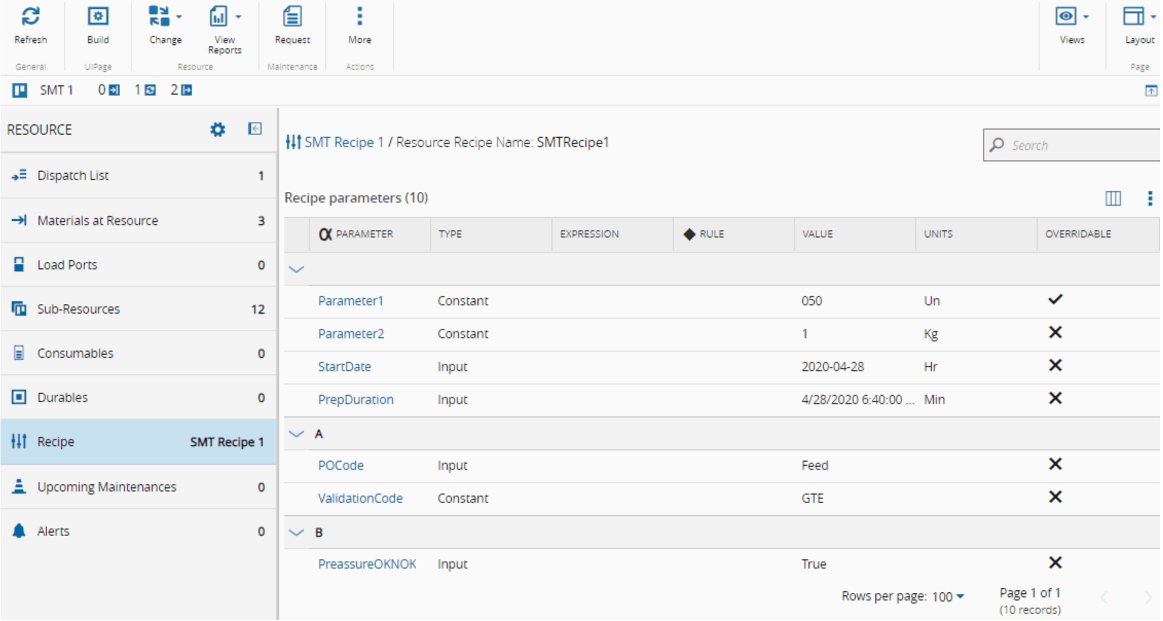
✓ Material(s) was/were dispatched successfully.
Material(s) was/were tracked in successfully.

Entities you may want to open:
SMT Recipe 1-000000239

Info

If the track-in is performed in a Line **Resource**, then the **Recipe** Instances are also created for the **Resources** of the Line Flow which provide the Services resolved, using the Service Context, and for which the Recipe Management is enabled.

The **Recipe** set for the Resource can be viewed on the Resource View Recipe tab, as shown in the figure below.



RESOURCE	
Dispatch List	1
Materials at Resource	3
Load Ports	0
Sub-Resources	12
Consumables	0
Durables	0
Recipe	SMT Recipe 1
Upcoming Maintenances	0
Alerts	0

SMT Recipe 1 / Resource Recipe Name: SMTRecipe1

Recipe parameters (10)

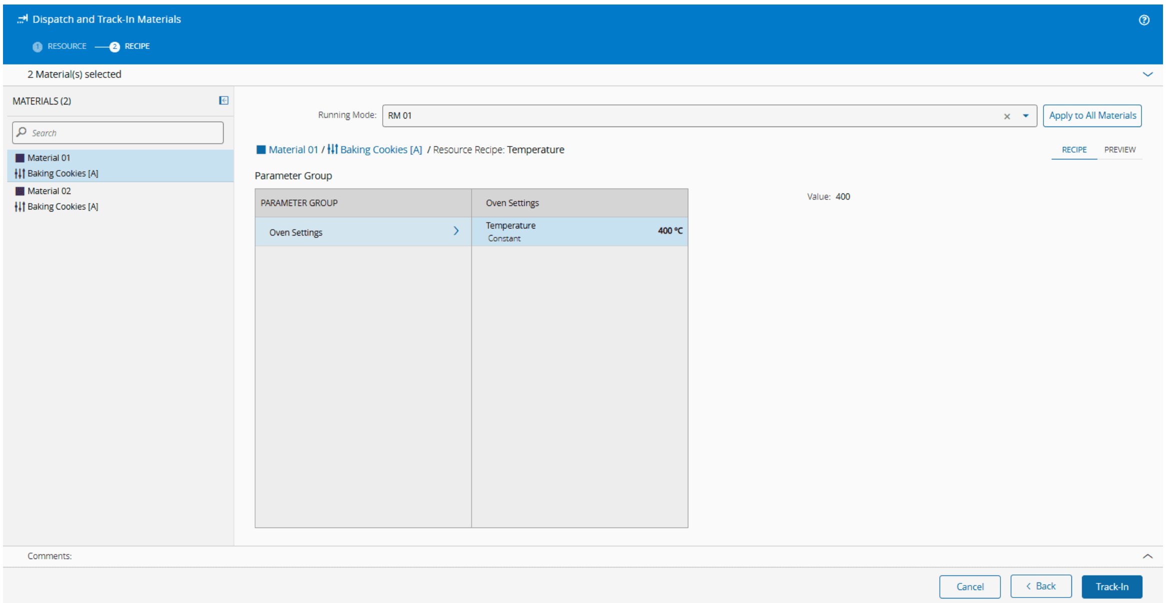
PARAMETER	TYPE	EXPRESSION	RULE	VALUE	UNITS	OVERRIDABLE
Parameter1	Constant			050	Un	✓
Parameter2	Constant			1	Kg	✗
StartDate	Input			2020-04-28	Hr	✗
PrepDuration	Input			4/28/2020 6:40:00 ...	Min	✗
A						
POCode	Input			Feed		✗
ValidationCode	Constant			GTE		✗
B						
PreassureOKNOK	Input			True		✗

Rows per page: 100 Page 1 of 1 (10 records)

Multiple Recipe Track-In

The system allows you to track in multiple **Materials** with different **Recipes** at the same time.

The following is an example of a Multiple Recipe Track-In view. The panel on the left displays the **Material** and associated **Recipe**:



2 Material(s) selected

MATERIALS (2)

- Material 01 Baking Cookies [A]
- Material 02 Baking Cookies [A]

Running Mode: RM 01

Material 01 / Baking Cookies [A] / Resource Recipe: Temperature

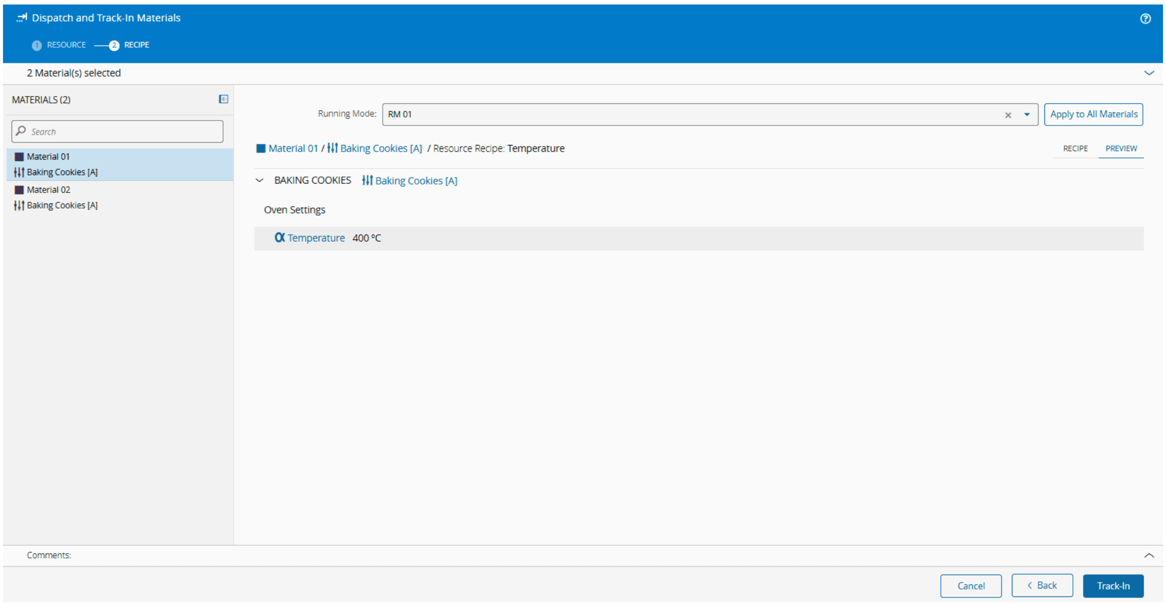
Parameter Group

PARAMETER GROUP	Oven Settings
Oven Settings	Temperature Constant 400 °C

Value: 400

Comments:

You can also select to **Preview** the **Material**, and the information displayed will correspond to the **Material** selected in the left panel:



2 Material(s) selected

Material 01
Baking Cookies [A]
Material 02
Baking Cookies [A]

Running Mode: RM 01

Material 01 / Baking Cookies [A] / Resource Recipe: Temperature

BAKING COOKIES Baking Cookies [A]

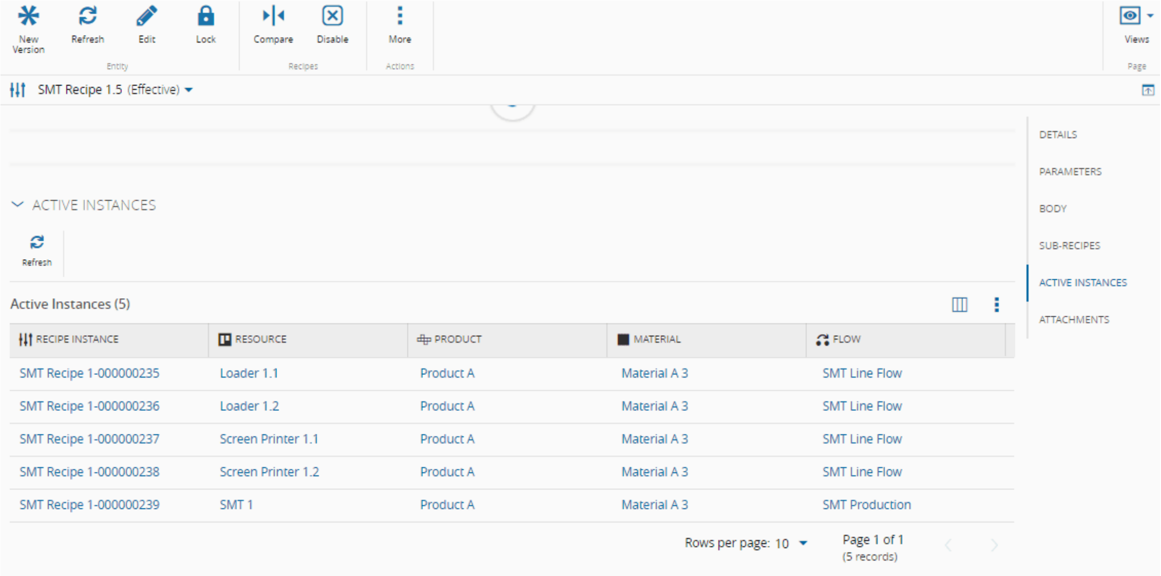
Oven Settings

Temperature 400 ºC

Comments:

Recipe Active Instances

All active instances of the **Recipe** can be found on the *Active Instances* section of the **Recipe** page, as shown in the figure below.



SMT Recipe 1.5 (Effective)

ACTIVE INSTANCES

Active Instances (5)

RECIPE INSTANCE	RESOURCE	PRODUCT	MATERIAL	FLOW
SMT Recipe 1-000000235	Loader 1.1	Product A	Material A 3	SMT Line Flow
SMT Recipe 1-000000236	Loader 1.2	Product A	Material A 3	SMT Line Flow
SMT Recipe 1-000000237	Screen Printer 1.1	Product A	Material A 3	SMT Line Flow
SMT Recipe 1-000000238	Screen Printer 1.2	Product A	Material A 3	SMT Line Flow
SMT Recipe 1-000000239	SMT 1	Product A	Material A 3	SMT Production

Rows per page: 10

Page 1 of 1
(5 records)

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